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BIRDS OF THE PARAMO OF CENTRAL ECUADOR.

BY SAMUEL N. RHOADS.

PARAMO is the name for the treeless zone of the Andean Mountains which reaches from the lower border of perpetual snows to the upper border of the tree line. This zone corresponds in western Ecuador to the areas found between the elevations of 12,000 and 14,000 feet. It is wide or narrow according to the relative steepness of the mountain sides between these elevations. While the transition area between the lower Paramo and the upper tree and bush line is more or less an interlocking of the two, and some stunted trees are found in sheltered gorges far up into the typical Paramo, there is no mistaking the region as soon as you near its lower edge, after a strenuous climb through the diminishing forest. You are then in the tussock-grass country. This tussock-grass, and the numerous minor plants and shrubs which crop out among it, feed numberless herds and droves of cattle, horses and sheep, a chief source of revenue to the owners whose vast haciendas often reach up, from the lofty *tierra templada*, five thousand feet higher into the abodes of everlasting snow.

Until the Andean traveler reaches the Paramo he can have no right conception of the immense grandeur of the Andean chain of the Cordilleras. Before that event he is so hemmed in by narrowing gorges, by chain upon chain of foothills, or by suspended oceans of vapor and clouds, that he begins to say in his heart, "There are no Andes; Chimborazo is a dream and Cotopaxi pure

fiction." It was with some such feeling as this that my companion, Mr. R. S. Lemmon and myself saw our camp outfit lashed to the back of an Indian pony in the barnyard of Hacienda Rosario on one of the few really decent Ecuadorian days of last May. We had come up from Quito, six miles distant, about two weeks before and had here made the southern foothills of Mount Pichincha our happy hunting grounds. Thanks to the kind offices of that veteran naturalist and Consul of Quito, Ludovic Söderström, and to the liberality of Mrs. Espinosa, the wife of its owner, we had been enjoying glorious days at Rosario and were rewarded by many a choice skin of the Hummingbirds, Wood Wrens, Flycatchers, richly colored Cotingas, Tanagers and what-nots which flourished there. But as yet we had only caught mere glimpses of the historic old crater, 4000 feet above us, which has stood muffled guard so many centuries, over the ancient citadel of the Incas. It was completely cut off from our "Casa" view by the broad shoulder of forest-covered rocks and the gorges above the farm-house. Our rambles rarely took us far enough to see around that shoulder and then only to be confronted by the mocking vapors which ever half reveal and half conceal the upper world of Ecuador in the rainy season.

It was the first day of May when we struck out into the wooded mountain trail above Rosario's hamlet, followed by our Indian and his sure-footed pony, and, selecting the cattle paths of the nearest quebrada, we made short-cuts for the Paramo. In about two hours we began to see more daylight and some fine scenery, and at 12,000 feet, the tussock-grass began as it were to reach down its finger-tips into the forbidden grounds of the rapidly dwarfing tree growths. Bushes briefly held sway among these and even up here the brilliant hued red and black Tanagers and Violet-ear and Puff-leg Hummers had ventured to fly upon the heels of the sub-arctic Finches and such Formicarian and Dendrocolaptean species (pardon the technicality) as had been more specially fitted for what we might call a grazing, as contrasted with an arboreal, life. As soon as we reach the long grass and low bushes, a sturdy Finch, *Phrygilus unicolor* (D'Orb.) of bluish slate color, almost as large as our Fox Sparrow, flushes, flies ahead and drops into the grass. Another, of the same size, brownish and streaked, alights

upon a nearby bush. Both are shot, and as the brown one was apparently singing, they are thought to be quite distinct, but later experience shows them to be male and female. Now there crawls up the stems of a taller tussock, in much the manner of a Seaside Finch, a sharp-billed, spiny-tailed and streaked little bird, *Siptornis flammulata* Jard., which looks a very hybrid in color and habits between an *Ammodramus*, a Wren, and a Bush-Tit. It belongs to the great Wood-Hewer family, *Dendrocolaptidae*. These streaked Sedge Creepers here took the place of their longer tailed cousins *Synallaxis* of the bushes of the *tierra templada*, which had so long wearied us with their tiresome "te-cheek, te-cheek," ever since we had landed. They carried the range of this type almost up to snow line from the upper edge of the hot country or "*tierra caliente*."

A few hundred yards, and we are fairly into the Paramo, surveying complacently the tree tops, pastures and cultivated fields below us without obstruction, save as the fickle vapors hide them momentarily from view. Raising our eyes, the dim outline of the snowy cone of Cotopaxi slowly focuses itself far, far away to the south, high above the backbone of the Western Range. A thousand rounded, intervening summits form its setting. Close by, a familiar note suddenly reminds us of home; a Wren cry surely. Beating about, we are rewarded by securing a specimen of the Andean Marsh Wren, *Cistothorus brunneiceps* Salvin, which we had found breeding in the *Juncus* bunches below Rosario at 10,000 feet, the lower limit of its range. But we must turn our backs on trifles, and, trudging now among the maze of cattle trails that intersect the sedge, we become painfully aware of our great elevation and the difficulty of following the steady pace of our native guide. Suddenly, along the edge of a dry ditch, a large Snipe-like bird, *Gallinago nobilis* (Slater), flushes at our feet and disappears over the nearest knoll. These are called "Woodcocks" by the English inhabitants of Quito, who esteem them fine game. They do not frequent marshy tracts and live almost entirely in the open, dry Paramo plains among the tussock-grass. In the same places, where the sedge grows dense and high, the peculiar, Grouse-like Tinamous hide. When one of these strange, short tailed birds takes wing, giving voice to its piercing, half whistling, half shrieking succession of notes, one is reminded, amid the novel confusion, of a bobtailed

Buff Cochin Pullet suddenly transformed into a winged cannonball. Of course one's first shot at such a spectacle is a clear miss and the bird seems to fly, and fly clear out of the country, as you watch its exit.

Much to our surprise the everlasting stumptailed Ant-thrushes, *Grallaria monticola* (Lafr.), of the *templada* bush-regions, common as far down the line as Huigra (4000 feet), have even followed us up here, into the wide open middle Paramo, to an elevation of 12,500 feet. The next day several of them were noted on a scantily wooded cliff, near camp, as high as 13,500 feet. This is a wide range for a bird of such limited powers of flight. In fact it is almost impossible to force this humpty-dumpty, thrush-like bird to open its wings, its long, robust legs enabling it to leap and jump and run with almost as much address as the famous long-tailed *Paisano* or Road-runner of Mexico. Strange, is it not, that such diversely feathered birds should have such similar habits? Nothing can be more tiresome than the three-cornered "Wu, weeo, weeou" or whistled song of this constantly invisible bird. Especially does this apply to the feelings of the collector, who has tried vainly from day to day to locate and secure the singer, which sits motionless in a low bush, or on the ground beneath, in such a way as to be completely obscured. The notes are ventriloquial, and you may actually walk away from it in endeavoring to get closer. Another bird of wide range, which comes up this far, is the tiny and fantastic little streaked Flycatcher with its Padrewski hair, the *Anairetes parulus* (Kittl.). It follows the occasional bunches of stunted trees on the quebrada sides to 13,000 feet, where also a high ranging Warbler was seen. Two other species of Sparrows were noted in the grass, and a dainty, buff colored Titlark, *Anthus bogotensis* Scl., of about the size of ours, but noticeably different in being able to fly without the inevitable snickers of *A. rubescens*. Perhaps the grandeur and solemnity of their habitat has subdued the frivolity of this genus in the Andean bird.

Our Paramo camp was located near the highest point where fuel could be secured, and in a pass which presented on the east a precipitous bluff of rocks leading on up directly to one of the lower peaks of Pichincha's summit. We had been warned against cold, and had endeavored to provide for it, but our first night was a

"terror," or, at best, an eight hour "shiver," without even the consolation of being frozen, for the mercury has the faculty of hovering at about 32° to 34° by night during the centuries at this charmed spot, nine miles below the Equator and two and a half miles above the sea. Dry wood was "excessively rare" (as they say in auction catalogs), and any kind of wood or grass or fuel, native to such a region, or even imported into it, is so loath to burn in that rarefied air, that we were lucky to even warm our beans and rice and chocolate in time to "turn in" at 6.30. By dark the eternal snows or rather sleet, began to fall and we were forced to "bunk up" to keep warm. Did I say, "keep warm?" Well, we *did not* keep warm, though we had enough on and about us to have withstood a zero temperature at sea level in the same outfit. I began to realize about ten o'clock that sleep was out of the question, so, between the ague fits that periodically stole over my frame, I listened. There was something doing that night. The moon behind the mists and sleet was eerie, and Pichincha's black crater-wall almost overshadowed us. The thin and ghostly sides of our tiny tent pulsated with the breeze, and I was vaguely reminded of that weird scene of the Witches' Kitchen, in Macbeth. The futile attempts of my companion a few hours before, to make the evening bean-pot boil, lent color to this fancy. Suddenly I was conscious of a Pentecostal sound, a rushing, mighty, but far distant, blast. It seemed to come from the crater. Could it be an eruption? No, the crater was extinct! And then, just as this thought consoled me, a deep answering growl, like a defiant echo from the cliff above our camp, sent thrills along my spinal marrow. Lemmon seemed to sleep, so I had no companion to this new misery. An interval, a drowse, and then another rehearsal of this unearthly carouse of the cliffs awoke me. Then did I become conscious of notes high-pitched and plaintive, a sort of tiny climax or tintinabulation, coming from the tussock-dotted arena around the camp. In the long hours which marked this dismal chorus I thought a thousand solutions for it. The crater and its possibilities figured in all; the answering growls and roars were those of ranging Mountain Lions on the high slopes and the final treble came, mayhap, from a watchful brown-breasted Flycatcher, *Myiotheretes erythropygius* (Sel.), whose mate I had shot the day before, above the nearby spring. When

we got back to Quito I asked Mr. Söderström to explain it all. The rushing wind he thought might be an Owl or some flying night-bird, possibly a "Woodcock" gyrating, or possibly "one of those Grouse." The Puma-like roars were surely from an Owl, and the minor refrain the chirping, peeping notes of the innocent and timorous Tinamous! What an anti-climax to my tragedy!

Our first morning on the mountain-top dawned gloomily enough, and it was tough work kindling a fire and warming up a bit. While Lemmon fanned the smudge I visited my frozen mouse traps and was cheered not a little by a very good catch of small rodents, an order very poorly represented in the lower altitudes of Ecuador. Near the spring I came across a brown bird whose make up and actions reminded me of a hybrid between a Wheat-ear and a Shore-lark,¹ as it ran about the banks and spray dashed rocks of the pool. It proved to be another member of that strange South American family of Dendrocolaptids. Not long after, as we rose over the ridge that separated us from the final slope to the crater, a few more were seen in company with a larger species, *Upucerthia excelsior* (Scl.), whose color was very similar but whose physique and movements among the sparse grass and heather reminded us of a cross between a Palmer's Thrasher and a Cactus Wren. Both these birds were almost wholly silent, only a sort of low, troubled, warning note escaping them when more sorely pressed by our pursuit.

The general absence of song, or even of voice, among the really abundant bird-life of this sublime region gives one a sort of awesome feeling as he goes popping about the slopes with a puny cane-gun. What are all these birds doing here? They don't seem to be breeding or mating or migrating;— just living, shiftless, without any object in life. Not so, however, the Hummingbirds. The lower half or two thirds of the Paramo is largely destitute of Hummers at this time of year, except as one may be seen to dart swiftly across in its journey to a distant peak. As one nears the snow line, however, and the top of Pichincha peers out at intervals from among the clouds, only 1000 feet above him, the Hill-Stars, *Oreotrochilus pichincha* Bourc., as they are called by Gould, suddenly become abundant. Flowers are far from common in the

¹ Its Dipper-like habits are alluded to in the generic name. It is *Cinclodes fuscus albiventris* Scl.

Paramo, but, as we near the frost line and the tussock grass dwarfs and disappears, a curious, straggling, prickly, evergreen shrub, the *Chuquiraga insignis* of Humboldt, is found growing in belts and patches and attaining a stature of six or eight feet. It has erect, thistle-shaped flowers of a brownish yellow hue and on these the Pichincha Hill-Stars seemed almost solely to feed. Away from these stony wastes, on the very verge of desolation, they never wander far, though their strength and rapidity of flight is truly wonderful and they seem to be the most restless of a restless family. We secured several specimens and were disappointed to find nearly every one in shabby, moulting plumage. The female Hill-Stars are one of the plainest of their sex in the family, a sort of frosty gray with only a faint tinge of the dorsal green which characterizes nearly all of the Hummingbirds. The males are truly beautiful, their pure white underparts and white, median tail feathers contrasting strongly with the dark wings and purple head and outer tail. The tail is large and used with fine effect in their curvets and airy gambols over the boulder-strewn arena, down into the quebradas and up into the black, basaltic cliffs that overtop the crater. Gould asserts this species is distinct from the Hill-Star, *Oreotrochilus chimborazo*, which inhabits a like region on Mt. Chimborazo, though that mountain is only 40 miles distant and could be reached by these wonderful aeronauts in as many minutes! What invisible barriers can they be which have set the bounds of such a bird's wanderings? The close resemblance of the two species to each other and to some ancestral type is unmistakable. We are led to think that ancestor must have lived when the lower country, now separating these two mountains, was at an average elevation of 13,500 feet, or rather so elevated that the floral conditions then and there obtaining favored the life of this Hummer. As that region became depressed, the Hummers of the two localities naturally advanced upward along the mountain slopes with the changing flora, and eventually became separated by a lower floral region, unsuited to their needs. After that, local differentiation became not only possible but probable, but it must have covered a period of many thousands of years. In short, just as many an island of the Pacific, due to depression, has been cut off from land affinities it once shared with neighboring islands, resulting in the strangest

isolation and provincialism of certain species of birds, so have the neighboring peaks of the Andes, rising above the semi-tropical ocean of the "Templada," become the refuge of slowly vanishing groups of birds whose very existence depends on an equatorial environment that is elevated about 13,000 feet above the sea.

There are other species of Hummingbirds which venture into the Paramo and even range over the top of Pichincha, but the Hill-Stars outnumber and outgeneral them ten to one. One of these is a dark Thorn-bill, *Ramphomicron stanleyi* Bourc., which feeds in a dainty, topsy-turvy fashion on the alpine crocuses and dwarfed heaths, which, near the snow line, have absolutely no stems but just bloom at the surface of the sand and ash. It is "heels-over-head" with these Hummers and they can take the turn with wonderful grace, seeming to be walking from flower to flower on their bills. Once in the hand, this species displays amazing colors, a beard of ruby fire on the lower throat; the chin metallic green; the long, broad and emarginate tail of a peacock blue! Gould says it is only found *within* the crater of Pichincha. We found it only *outside*, along a narrow gorge, 500 feet below the crater's top. Just as the snow is reached, the sandy crater-slopes are strewn with boulders, and seated on these we here find for the first time a beautiful grayish Flycatcher, *Muscisaxicola alpina* Jard., dark above, nearly white beneath, the size of our Phœbe, darting languidly about after the insects which have dared this thin and frigid atmosphere. Not a sound save a weak and plaintive call escapes them and their presence seems to heighten the mystery of a haunted land. Here, too, is the very exclusive haunt of the whistling, loud-calling "Partridge"¹ of the arenal,—the Crater Partridge it may well be termed, a brownish, sand-colored bird of swift, nervous flight and about the size of a Pigeon.

Hawks are not rare; a black fellow with red legs, the size of our Sharp-shin, often darting around the quebradas after an unwary bird or mouse. The handsome Vulturine Hawk, *Ibycter carunculatus* (Des Murs.), looking and behaving much as our Texan Caracara, was seen about camp in pairs and one was shot by Mr. Lemmon out of the driving mists on the very crater brink of Pi-

¹ Not a Partridge at all, but a seed-eating Plover-snipe, belonging to the *Charadriiformes*; *Attagis chimborazensis* Sci.

chincha. The ubiquitous Sparrow Hawk also climbs these slopes, and, for all one can see, it is exactly the same as ours of the States.

High over all careened the white ruffed Condors. As many as five could be seen at one time, circling the summit or setting their course directly toward and over us when our shooting became most noisy. Their appearance in flight resembled closely that of the California Vulture, there being more of the Eagle in it than is seen in the gyrations of our Turkey Vulture. No flapping was noted, except a few strokes when shot at, as one flew directly over, about 250 feet above our heads. The flight is very swift, not often in circles but from peak to peak or down over the Paramo, to which region they seem to mostly confine themselves. We never saw them at Rosario, though they are said by Mr. Söderström to breed as low in the cañons as 8,500 feet. Despite their white secondaries and collar, Condors rarely look whitish in flight, the back generally being above the line of vision. I was greatly disappointed in the apparently small size of these birds from an open-air viewpoint. They actually looked no larger, in such magnificent surroundings, than our own poor Buzzards. However, even mountains look small from the Paramo and when one of the great birds bore down upon me, at the report of my gun, and came rushing along about 150 feet overhead, with the tempest in his teeth and his widely distended primaries cutting the air with a sound like a hundred sabres, I was quite impressed. The glancing eye and rapidly turning head, as he made a few circles above me, showed that he also was looking for game, but evidently my anatomy was not to his fancy and he passed grandly on.

HADDONFIELD, N. J.

Feb. 9th, 1912.

NOTES ON WHIP-POOR-WILLS AND OWLS.

BY FRANK BOLLES.

With a Foreword by William Brewster.

EIGHTEEN years have come and gone since Frank Bolles died. It was fittingly said at the time of his death: "Harvard College may get another Secretary but not another Frank Bolles." Equally evident then as now was the fact that precisely the place he filled and the service he rendered as a nature student and writer could never again be made good. For he possessed qualities which in combination—if not severally—were well nigh unique. Although romantic by temperament and gifted with rich imagination he was exceptionally accurate of observation and no less careful of statement, seeing things exactly as they were and afterwards describing them exactly as he had seen them, in language admirably terse, yet so vivid and so picturesque that one could not help wondering at its beauty and effectiveness. Moreover he had it ever at command and was so able to concentrate his thought that some of his most charming and perfectly finished essays were written within the space of an hour or so, in the family sitting room, with half a dozen people close about him talking—he himself perhaps contributing more or less to the general conversation. Unlike most men who have won distinction as field naturalists he took no conscious interest in nature during early boyhood but in 1876, when nineteen years of age and at Dean Academy, Franklin, Massachusetts, he wrote in some notes which Mrs. Bolles still possesses that he was "thoroughly fascinated" with the study of "bird habits and peculiarities." It does not seem to have engaged his serious or at least continued attention, however, until 1884 or 1885 when he set about it with characteristic energy and intelligence, thereafter devoting to it most of the time not required for the performance of professional or family duties. By night as well as by day, at all seasons and in every kind of weather, he was afield in the region about Cambridge or in that accessible from his summer home at Chocorua, New Hampshire—while occasional trips were undertaken to remoter places such as

Cape Breton. Many a man of similar field experience has failed to profit greatly by it; but Frank Bolles was accustomed to so direct and systematize whatever work he had in hand as to make it yield the best possible results and by personal observation chiefly, within a period extending over not more than ten years, he became intimately acquainted with many of our New England birds besides ascertaining facts concerning some of them which had not previously been known to any one. Unfortunately he had scarce begun to draw on this rich store of original information for purposes of publication when his life came prematurely to an end. Nor had he committed much of it to paper in any form, being accustomed to rely largely on a memory so perfect that it rarely failed and never misled him. He left, however, some finished manuscripts which Mrs. Bolles has published since his death in two volumes entitled respectively "From Blomidon to Smoky and Other Papers" and "Chocorua's Tenants"; the latter book consisting of a collection of original poems relating — with a single exception — to familiar birds. There were also a few pages of field notes — written on the backs of printed lists of Harvard Professors which Mrs. Bolles has most kindly placed at my disposal, thereby enabling me to offer them to the editor of 'The Auk' who has accepted them with an eagerness which does credit to his known appreciation of everything especially precious in ornithological literature. Since he proposes to print them as nearly as possible in their original form, and also to reproduce by photographic process a portion of the manuscript with some pen and ink sketches which accompany it, they may safely be left without further word from me, to testify — even more convincingly perhaps than have any of his finished printed essays — to the extraordinary care, precision, patience and intelligence with which Mr. Bolles was accustomed to pursue his field studies of birds.— W. B.

With the Whip-poor-wills.

July 5th. 8.25, on stone heap E. of barn. 8.27, stone W. of well. 8.33, hears other down by lake and disappears instantly. Whip. down by lake about $\frac{3}{4}$ minute later whips very much faster than usual. 8.45 Whip. II whips a few times bet. house and lake.

July 7. 8.35-45. "Quip o' rip (or ri)." At 8.20 I went to stone W. of well and hid under the narrow fringe of Spirea bushes, $2\frac{1}{2}$ ft. high only 3 ft. from stone. No wind bright moonlight. I lay flat on my stomach, and shook bushes well over my legs and snarled them over my body. Then resting my chin on my hands and holding my soft brown cap over my mouth and nose I waited. Mosquitoes, flies and midges simply hellish. I suffer torments. I wait 15 minutes. Five pass in utter silence as far as whips. are concerned. Then at 8.25 two begin down by lake, and continue about 5, shifting some. By 8.34 one had got to stone heap by barn. I know he will come to me next and I shake myself, rub off skeets and wait. Suddenly I hear a rather feeble whip, 12 times S. of me, then silence and then a bird flies to the stone in front of my face, coming low over the bushes and lighting with its tail towards me. It squeaks or clicks three times, and I fear it suspects me and is giving a slight alarm note, but the next moment it begins the piercing *quip o' rip* slightly raising its head and dipping its tail each time it makes the sound. The head rises on the *quip* and falls on the *rip*. The wings do not move, nor the body save by slight tipping. I could see the bird's outline perfectly against the white background of the shingled barn on which the moonlight fell fully. It uttered its note about twenty or thirty times when to my astonishment another whip. alighted near it, on the left (W.) end of the boulder. One or two sounds like the soft popping of corn came from the new arrival, and the first bird, which had ceased its call, faced west and began a strange, slow dance, advancing a step at a time towards its mate, raising its body to the full length of its legs at each step, thus making a sort of undulating approach. The other bird remained where it alit, but seemed to be moving its body up and down or else slowly pulsating its wings. The first bird, which I think was the male, seemed to continue its dance entirely around the female. As he passed her, indescribable purring and popping sounds were made and one of the birds flew lightly away.—the ♀ I think. The male resumed his first position, and remained silent. Then he rose and circled in the air, catching an insect I thought, for he came back at once to the spot on the rock which he always covers. A moment later his mate seemed to call from below the house,

near the lake, and he flew, his white feathers flashing as he spread his tail, and the strokes of his wings making a distinct and quite loud sound as he passed close above my head.

July 8. Went out at 8.20. Bird began by barn by 8.25, and remained there five to eight min. Then went further, came back, and not until about 8.40 did he reach my stone. He came very low, made a half circle to the right and alit. No suspicion of me, although this time I had crawled up so that he was within long arm's reach. He began whipping at once and the sound was really deafening I forgot the mosquitoes and midges in listening. My heart beat violently and in my cramped and uncomfortable position I trembled so that the bushes swayed. He minded not. Once I swallowed and made a slight sound in my throat, as my head was jammed back on my shoulders. He stopped instantly and listened. After 50-60 whips he whirled up into the air and then returned, this time a foot farther away from me but facing me. The sound was even more intense and I could see his white throat move. He shifted his head from time to time and the direction of his beak regulated the carrying power of the sound remarkably. As I heard it tonight under the most favorable conditions possible the sound spelled out was *a-crip-o-ri*. The "a" being the cluck. The last note is open. Watched very closely there proved to be very little motion in the head, tail or body — considering the violence of the sound. No reply came to the whipping and no visitor. So after about seven to 10 minutes, probably less, my bird flew away, after an interval of silence. He went to the stones near the brook, and I followed to locate him. He went but later came back about 9.30, and his mate came too, as their extraordinary purring attested. He also went back to my stone, showing thereby no fear or suspicion. It was a strange feeling to be so near a living bird singing such a strange song, at night. Wind N. N. W. Moon full and perfectly clear. About four other whips, audible. Remarkable regularity in time, place, attitude. An odd character all round.

July 9. Took my place at 8.20. Bird came about 8.30 after having been by barn as usual. He flies just over top of fence, slightly rises, wheels and faces the way from which he came. He began whipping without prelude and whips about 50 times, all

the while keeping his head moving now to right, now to left. Then he was silent. While he whipped his mouth seemed to open and shut with each whip. It was light enough for me to feel quite sure of this at first. His silence was broken by a sound which I thought was not connected with him. It was a sort of low snoring reminding me slightly of the dry sound produced by rubbing one's thumb over a smooth piece of wood, or the inside of the closed forefinger. He made this sound three times, and a second later said "whip" sharply once. He was answered by a similar single note from the fence or wall a few paces away, and with a flash of his white spots he was gone. He said "whip" once or twice on or near the fence, and then went further. From the fence I was much more likely to be seen than from any other quarter, and I think his mate refused to join him on the rock owing to my dark presence. I was near enough to him while he was whipping to have reached out my hand and touched the spot on which he stood.

As the bird sits flat on the rock its wings show their tips clearly over the tail.

Once later before I stirred, he came into the dooryard and sang cheerfully from the woodpile or the kitchen steps — an unusual proceeding.

Aug. 9. Every night thus far the whips. have sung, and I heard them this a. m. at 4 o'clock. For a month my whip. has not been on his rock to sing. Once about July 30 I heard him purring there at 8.30 p. m. Last night while I was eating a late sup. after being at Heron Pond till 7.30 I heard one say "whip" either on or just beyond the back piazza. Six were audible at Heron Pond about 7 p. m., one on the shore. As a rule, but with marked exceptions, they say whip-poor-will on three or four times running instead of 60-100 or 150 as a month ago. Full moon makes no apparent difference.

Aug. 29. Have heard no whips. since Aug. 21, a. m. Aug. 29, heard them this evening.

Sept. 4. Whips. going a while each evening.

Sept. 11, 12, 13. Whips. going on the stone. Several times 3 nights running.

Sept. 21, 22. Whip. around barn, on bracket on roof, clucks

3. Whippoorwill The tree answered by a singular single note from the fence or wall a few paces away, or with a flesh of his white spot he was gone. He said "Whip" once or twice on or near the fence, & then went further from the fence & was much more likely to be seen than from any other quarter & I think his mate replied to him on the rock owing to my dark presence It was enough to him while he was whipping to have reached out my hand & touched the spot on which he stood.

In the bird sits flat on the rock it wings show this wings clearly over the tail



Once late before I stirred, he came into the doorway singing cheerfully from the woodpile or the kitchen steps — an unusual proceeding.



Aug. 9

Every night thus far the whip's have sung. I heard them this a.m. at 10:15 for a month my whip has not been on his rock to sing. Once about July 30 I heard him purring there at 8:pm. Last night while I was eating a late sup. after being at Heron Pond till 7:30 I heard one say "Whip" either on or just beyond the back piazza. Six were audible at Heron Pond about 7pm. one on the shore. As a rule, but with marked exceptions, they say whip-poor-will on three or four times, & running instead of 60-100- or 150 as a month ago. Full moon makes no apparent difference.

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REPRODUCTION OF A PAGE OF MR. BOLLES MANUSCRIPT, SLIGHTLY REDUCED.

when I "whip." Flies near his stone, clucks in the woods,—flops into cherry tree. Have heard no full song for several days.

23. Several full song many times, 6.30 p. m.

Owl Notes.

I wrote my article for 'The Auk'¹ late in December, and early in January. The owls have not bathed much during the winter perhaps because I have not been regular in giving them fresh water. Fluffy ate nothing, so far as I could ascertain between Dec. 15 and Feb. 1. About this time I began to make efforts to vary their diet. I gave up kidneys and gave them mice, grouse wings and heads, a rabbit and fish heads. Fluffy was won over by mice into open eating. Early in February I enlarged their space by making a wire room outside their closet. About three weeks later I gave them half the cellar enclosed in wire netting and built them a hollow tree of barrels. It was about February 10 that I noticed their gathering of material in one corner of a shelf in their closet. Feathers, cotton batting, and dry leaves were placed in a flat layer over the board. It is now March 16, and I am satisfied that they keep constant watch of this place. They remove any additional material which I place near the flat bed. Just about a week ago I began giving them eggshells and eggs. During the week they have eaten the shells of nearly two dozen eggs. For example, this morning I gave them the shells of six eggs covered with the contents of one store egg. Both owls were hungry and they went for the dish in haste. Every considerable part of shell, membrane and yolk etc. was eaten within ten minutes. The taste of the fresh egg pleases them greatly and they crackle the shell in their beaks with evident enjoyment. Fluffy is expert in catching mice or grouse wings thrown into the air. Both birds have fully regained their appetite. A large haddock head is devoured in 48 hours, practically nothing is left of it, except the two largest bones and not always those. I am feeding them light. This week they have had five mice, one fish head, two eggs and the mass of egg shells. They no longer show much interest in the cat when she walks about the cellar floor outside their pen. About a week ago both birds got out through a corner of the wire netting next the floor. I do not

¹ Cf. 'The Auk,' 1890, pp. 101-114.

understand their finding the place. One might have but why both? They have been restless during the early evening for 6-8 weeks or more. I can tell now when they fly about much, because their roosts jar the wire netting when struck in alighting. Once each evening they or one of them hoots or crows. Tonight (16 March) it was at 6.40. Last evening it was 6.55. For many nights it seemed to be at about 8.15 to 9. Later they are perfectly still. Puffy bathed today the second time this week. I had just given them fresh water. I do not note any interest in the barrel tree, although they spend much time in that corner, back of the furnace.

March 5, 1891. It is nearly a year since I wrote the above and I am ashamed that I have not kept better notes of what I have done with my pets. The summer was not one of much activity. My family went to Chocorua April 29, and I followed them finally July 4, or 6, I forget which, I overworked the last few weeks and was far from feeling well all summer. I spent much time in July and early August in watching Sapsuckers, and later L. and I spent ten days at Mt Desert with the Eliots. I was called back to my desk about September 18, and the family came home about October 1. I was laid up with a dislocated ankle. After my writing the March notes last spring the owls did nothing marked. They scattered their nest materials and forgot them. They moulted freely and feathered out finely later in the summer. My notes about Scops are noted elsewhere also about the three young Scops. I tried Puffy on Nighthawk, Whippoorwill, Sandpiper, Woodcock, Hummingbird, Kingfisher, Red-tailed Hawk, Blue-headed Vireos, Barred Owls, Water-thrush, Chewinks, Flock of Blue Jays, large flock of Crows, on Plovers, Loon, the Scops, Snowy Owl; with various results. By way of new food I gave them earth worms in quantities, fresh water mussels which they ate greedily. Snakes of various kinds of which they used to be in terror and which they ate freely, sometimes doubled and squirmming alive. They continued to catch live perch and breem, Chipmonks and mice. Puffy caught Chipmonks most successfully. Fluffy was n. g. with them. I used Fluffy all summer and once or twice took out both together. A tap on Fluffy's head at Heron Pond nearly killed him. The skull is awfully thin. I never punish them since that.

Mr. E. C. Mason brought me little Scops on the evening of Thursday April 17. He brought him in a basket in which he had been confined for a day or two. He was captured in Arlington on the 15th. He was sitting in the mouth of a hollow in a tree, and looked like a dead stick poked into the hole. Mason said he was motionless but suddenly fell into the hole as a stick would slip in — without a wiggle. He did not offer to bite Mason. Mason brought him to me about 8, p. m; I brought up Puffy and Fluffy to the library and then let out Scops who flew about. At first Puffy and Fluffy only watched him with curiosity but later Fluffy did his best to catch him, dodging and circling over the gas jet. I took the big owls away and stroked Scops freely. That night he spent in the back cellar. The next morning he flew against the netting of Fluffy's cage and Fluffy struck for him full force. Scops let go and flew back or Fluffy would have clinched him through the wires. I at once saw plainly that they could not live together, so Scops was taken up to Olive's room and left in possession. Friday he ate nothing. On Saturday morning he had eaten some meat, scraps of chicken entrails, and had drunk. He permits the freest possible handling, caressing etc. Will sometimes hang head downward by his feet — as though dead — or lie on his back in the palm of my hand with eyes closed and no visible motion. On Saturday morning I dragged a dead mouse across his floor by a thread and he pounced instantly and crushed the nape of the neck, pulled off pieces there, then severed the head and swallowed it and then swallowed the whole body. Sunday he did the same. The next day he saw me bring in a mouse and pounced on it almost as soon as it touched the floor. Monday 2 p. m. I caught a sparrow in my box trap but he took no notice of it until night although it flew by him again and again for hours. After 10 p. m., I shut him up in a closet with the sparrow and in the morning he had eaten all but a small lot of feathers, some stiff, some soft. Tuesday I gave him nothing. Wednesday a. m. I gave him a dead robin. He began by eating the right eye and then tearing away scraps from around the wound.

Thursday or Friday I found him dead. Mason after dissection concurred in my theory that he died from injury to the brain due to beating his head against a wire netting at the window.

In June or May sometime Batchelder sent me three young Screech Owls. I sent them up to Chocorua. They were grey and lovely but with awful tempers and harsh voices. Two were later returned to him, and again sent up to Crowlands. They had lost their good feeling toward the one left with me and abused him somewhat, shunned him always. At last, late in August I think it was, I found him dead and *plucked* in the cage. A week or two later I put the survivors into a barrel with a live mouse. Neither caught it. They quarreled and the next morning one of them was dead and partly plucked. The day following the other died. I clipped all of their wings and took out the one not returned to Batchelder several times. He drew birds if they saw him but he often made a stump of himself and evaded observation. They were fond of small birds, mice, fish, and so-so of liver.

THE RELATION OF GENERA TO FAUNAL AREAS.

BY SPENCER TROTTER, SWARTHMORE COLLEGE, PENNSYLVANIA.

THE relative antiquity of a genus is probably indicated by the greater or less departure of its several species and their varietal forms from a common ancestral type. The degree of departure may be the resultant of two opposing factors — first, the influence of conditions favoring segregation, as the character of the vegetation and the variety of habitat within the breeding range, and, secondly, the opposing factor, that of the inherent quality of resistance in the common ancestral type against the disrupting influences of environment and of variational tendencies. It is in the breeding ground or faunal area that we must look for the conditions which produce these changes in epidermal tissue and those minor departures in voice and habits that we recognize as constituting distinctive specific and varietal differences within a genus. These influences are operative in the breeding area at the period of greatest plasticity of the organism, and variations from

the common type thus produced would tend to become more firmly set in the new form through geographical or habitat isolation in the breeding season. During an extended period of time this differentiation would tend toward an equilibrium as the inherited characters strike a balance with the environment. Time, and the segregating influence of wide geographical areas, with their opportunity for varied climatic and vegetation habitats, appear as the responsible causes of the phenomenon of species and of species distribution.

This is so well-worn a theme that I must ask your pardon for bringing it forward. It seems to me worth while, however, to recall these underlying principles. It is a habit of mind to regard a species as very definitely related to its range. It is much more definitely related to its habitat. By this I mean that a species is much more likely to extend its range than to alter its habitat. And further, I feel convinced that temperature *per se* does not effect the sexual tissues of a species so profoundly as to set barriers to its breeding area. Temperature, rainfall, soil conditions, and topography affect the character of vegetation and this is apparently the most direct and dominant factor in the distribution of species.

In a paper read before the Delaware Valley Ornithological Club and published in 'The Auk' for July, 1909¹ I have stated my belief that the present geographical groups of species which we recognize as faunas are more or less temporary phases in a general northward spread of species during post-glacial times, and that the true interpretation of faunas is not to be found in any single condition, such as temperature, but is related to the geological history of a land. In the present paper I wish to bring forward the thought that in this very advance or northward spread we have the conditions which have broken an original common type into several varietal and specific forms.

Let us take, for example, the genus *Hylocichla*, a group of woodland Thrushes quite similar to one another, presenting, one might say, a minimum of departure from an ideal type, both in adult sexual and juvenal phases of plumage. It seems quite possible that a generalized ancestral form common to all may have existed

¹ The Geological and Geographical Relations of the Land-Bird Fauna of North-Eastern America, pp. 221-233.

during the Middle Pleistocene in a more or less restricted area south of the glaciers, and that in spreading northward after the melting of the ice sheet, certain individuals reached farther to the north than others, establishing breeding grounds in comparatively high latitudes. This ancestral type was undoubtedly one of the many species that characterized the forest fauna of the Pleistocene and spread northward with the spread of this forest during what geologists term the Glacio-Lacustrine sub-stage. The instinct to return to this northerly nesting area at each succeeding spring would become a fixed habit through inheritance, and this group of individuals, removed by its position from the swamping effects of intercrossing, would tend to hold any variations that developed by segregation, the inherent quality of resistance against disruption determining the degree of change. The specific forms we recognize as *Hylocichla aliciae*, *H. ustulata*, and *H. guttata*, with their several varieties, are thus the more closely related northerly-breeding species, the nesting grounds of which now overlap one another, though the Gray-cheeked Thrush has advanced beyond the limits of the other two, quite to the tree-line, while the Olive-backed Thrush has spread somewhat beyond the breeding range of the Hermit. In these two last species I have observed in Nova Scotia a marked difference in habitat. The Olive-backed Thrush was invariably found during the breeding season in the tall and heavy growth of coniferous woods, while the Hermit Thrush frequented, almost entirely, the lighter, scattered growth, being especially abundant in burned-over tracts and in sprout-lands of birch. In limited areas their nesting sites did not coincide and this habitat difference may have been responsible in the fixing of their specific characteristics by segregation.

These remarks on the Genus *Hylocichla* apply mainly to the eastern phase of distribution. In the Cordilleran region and on the Pacific slope the varied conditions of mountain topography have more profoundly disturbed the several types which have broken up into a number of varietal forms. On the eastern side of the continent we find a variety of *Hylocichla aliciae* — the Bicknell's Thrush — occupying quite isolated areas during the breeding season. *Hylocichla fuscescens*, the Veery, is of a more southerly breeding range than any of the foregoing species, while

the Wood Thrush, *H. mustelina*, has not advanced beyond the Transition Zone.

The Genus *Dendroica* of the Mniotiltidae presents the antithesis of this close likeness of specific forms. We have here a group of thirty-four species that are widely different from one another in color pattern and with breeding ranges, in many cases, coterminous, or at least markedly overlapping. A geographical analysis of the genus shows that the species fall into two equal numerical groups. One group of seventeen well-defined forms has a strictly northern breeding range as compared with another group of seventeen species that is mainly extra-limital, breeding in the sub-tropical or the tropical domain, certain forms being confined to insular areas in the Caribbean. Four species of this second group have forms that breed in the North American region, namely *D. aestiva*, *D. auduboni*, *D. gracilis*, and *D. virens*. Of the first group of seventeen strictly North American species only three are limited to the western side of the continent — *D. nigrescens*, *D. townsendi*, and *D. occidentalis*, the remaining fourteen being highly characteristic of the eastern fauna.

Taking into account the large numerical element in this genus and the great variety displayed by its forms, together with the fact that one half of the recognized species are still confined to the tropical or sub-tropical area, there seems some evidence for believing that this group of birds is of considerable antiquity and that its area of characterization was somewhere in the Middle American region of tropical environment, possibly at a time when the Tertiary land borders of the Gulf and Caribbean were much more extensive than at present and when certain of the now island masses were more closely connected with the main continental land. With the disappearance of glaciers from the northern region certain primitive types spread northward, and I think we may recognize the vanguard of this movement in such species as *D. striata*, *D. castanea*, *D. palmarum*, *D. townsendi*, *D. magnolia*, *D. tigrina*, *D. aestiva* and *D. coronata*. All of these forms reach a high northern latitude in the breeding season and some like the Black-poll and Palm Warblers, the Myrtle and Magnolia Warblers have been lured far into the Northwest, indeed quite to the Sub-Arctic, by the great stretch of coniferous forest. The wide overlap observed in the

breeding area of these species would seem to indicate, as in the case of the Thrushes above cited, a slow movement of one species upon the heels of another, overtaking one another in their gradual spread, and it is probable that the initial movement was made up of a less number of forms than is represented by the existing species.

The distribution of color has considerable significance as an indication of descent. The almost universal presence of white blotches on the tail feathers among the species of *Dendroica* and the presence of wing bars must have been the fundamental color marks of the common ancestral type. And it seems to me, further, that certain primitive varieties of this common ancestor are indicated by the greater likeness among some of the existing species. The similarity of such species as *striata* and *castanea* in the autumnal phase of plumage, and the streaky, brownish young of *coronata*, *tigrina*, and *palmarum*; the head patch common to some forms, the throat patch common to others in the adult plumage, the rump spot and other markings, are very evident features of some community of descent.

All this, however, is not to the point or purpose of the present paper. What I wish to show here is that a genus like *Dendroica* possesses evidence in the large number of its specific and varietal forms and in their wide extra-limital distribution of a disruption of some tropical or sub-tropical ancestral type at a remote time compared with such a genus as *Hylocichla*. Geologically we might express this by saying that the primitive specific types of *Dendroica* were of late Tertiary origin, whilst the Hylocichline type was broken up into specific forms during the Pleistocene. Birds have their geological history as well as do mammals and other forms of life and as we have not been able so far to find their fossil remains we must look for traces of this history in the specific characters and in the facts of geographical distribution.

Professor Osborne has cited the case of a mammoth¹ in the stomach of which were found the remains of flowering plants and grasses belonging to species that are still growing in northern meadows. Conservative estimates as to the time when this animal lived would carry us back some twenty-five or thirty

¹ Osborne — "The Age of Mammals," page 420.

thousand years. It is probable that many existing species of birds frequented these ancient meadows and the encroaching woodlands of birch, alder and conifer. If not the identical species then at least a very near and closely similar parent form that had split off from a still more remote parental stock.

I have taken the genus *Hylocichla* and the genus *Dendroica* as presenting very wide contrasts in the number of specific forms and in degree of likeness. Any genus of land birds that we will analyze must reveal some features that point to its history in connection with the origin and distribution of its several species and their varieties. If a genus stands for anything it must stand for this origin of its several species from a common ancestral type, near or remote. If the distribution of a genus means anything it means the history of its species in relation to changes through environment and the fixation of characters by segregation. Overlap or coterminous breeding range is the logical sequence of the spread of a species or variety into the territory of another, either after the one in advance has become fixed or in habitat differentiation if advancing at the same time. The Transition Zone Fauna is a wide expression of this overlap and is a clear indication of the advance of types toward the north. It is not, however, a permanent expression, nor is any faunal area permanent. Viewed in the immense lapse of time it is a momentary glimpse of an endless biograph. I am constantly interested in reading items in the pages of 'The Auk' that refer to some species of bird observed in a locality to the north of its general breeding range.

In conclusion let me sum up the somewhat rambling matter of this paper in the following brief statements:—

(1) — The genus means an ancestral type that has split up into its present component of species and their varieties under the influences of geographic and habitat environment.

(2) — The forms thus divided become fixed through segregation in the breeding area either through difference of habitat or by extension of range.

(3) — Each original type must have possessed, and its descendants probably still possess, a certain greater or less resistance to disruption. A genus represented by a single species, or at most by a very small number, would seem to indicate a high degree of resistance, even though spread over a widely varied territory.

(4) — The greater antiquity of one genus as compared with another would seem to be indicated by the larger number of its species and their wider variation from one another, but this might be offset by a greater resistance against disruption so that the genus represented by only one species might be, in reality, quite as ancient as the numerically high one. Furthermore we cannot know how many forms may have died out in any genus.

(5) — A genus is definitely related to a geographical range, while its several species are more definitely related to habitat conditions within the range, especially the breeding area.

(6) — A fauna is an expression of the temporary adjustment of any group of living beings to given conditions of environment. No single factor conditions its components or its boundaries. In the sum of its conditioning factors character of vegetation is probably the most important determining influence. Unquestionably the changes which man has wrought upon the face of the country by the clearing of forests and the development of agriculture has profoundly influenced the distribution of many species of birds.

(7) — All species tend to spread, as their ancestral types have spread, wherever suitable habitats are accessible to them. Search for food, especially at the breeding season, is the motive. Heredity has fixed the migratory impulse. The long daylight of the northern summer has probably had a determining influence in the northward spread of ancient generic types and of their descendant species.¹

¹ E. A. Schäfer, F. R. S. On the Incidence of Daylight as a Determining Factor in Bird Migration. *Nature*, Dec. 19th, 1907.

NOTES ON THE LAYSAN FINCH.

BY HUBERT LYMAN CLARK.

SOME time ago, Dr. W. K. Fisher kindly gave me an alcoholic specimen of the Laysan Finch, *Telespiza cantans* Wils., with the suggestion that I examine its pterylosis, comparing it with that of some of its Hawaiian allies as described by Gadow (in Wilson and Evans' *Aves Hawaiianae*, pp. 219-249). Since *Telespiza*, however, is one of the very few genera of endemic Hawaiian birds which Gadow had no opportunity to examine, it seemed desirable to examine some of the other features of its anatomy and thus make my notes a sort of addendum to Gadow's work. The relationship of *Telespiza* to *Loxioides*, *Psittirostra* and *Rhodacanthis* is so evident that it would be surprising if my investigation threw any new light on the connection between these birds and the other Passeres. I have however compared my Laysan finch in each character examined with a Chewink, *Pipilo erythrrophthalmus*, not because of any possible relationship between the two, but because the chewink is a ground-loving finch not altogether unlike *Telespiza* in its habits. I will take up the different points examined in the order adopted by Gadow in his account of *Loxioides*.

Bill. Gadow says that the bill of *Loxioides* is "like that of typical Conirostres and clearly Fringilline, without notches." In *Telespiza*, the bill seems to be very similar to that of *Loxioides*, but I am not sure that it is clearly Fringilline. It is not very similar to that of *Pipilo* nor to those of several other American finches with which I have compared it. Its most marked peculiarities, in addition to the absence of notches, are the very straight commissural line with hardly a trace of being bent downwards at the inner end and the markedly incurved or inrolled tomia, which do not appear to form any cutting edge against the upper mandible.

Nostrils. The character of the nostrils is one of the most marked differences between *Telespiza* and *Pipilo* or any other Fringilline birds with which I have compared it. The openings are large but each is provided above and on the posterior margin with a piece of thick bare skin, apparently corresponding to the opercular fold of many Hawaiian birds. A similar fold, less conspicuous because

narrower and sloping inwards, is present on the lower margin also. So far as I can understand from Gadow's description (l. c., p. 246) this arrangement is very much like that found in *Rhodacanthis* and *Chloridops*. It is less like that found in *Psittirostra* and seems to be noticeably different from what is shown by *Loxoides*. It seems probable that Rothschild's description of the nostrils in *Telespiza* (Avifauna of Laysan, p. 199) was made from a dried specimen, for it does not accord with what alcoholic material shows. It may be that in life the nostrils can be quite closed by the movement of the bare surrounding skin.

Tongue. In *Telespiza*, although the tongue resembles that of *Loxoides*, the vertical thickness and fleshiness are remarkable. The tongue proper is 11 mm. long, scarcely 2 mm. wide and about 2.5 mm. in vertical thickness. The fleshy surface is quite papillose and the tip is not divided but is finely fringed as in *Loxoides*. As compared with *Pipilo*, *Telespiza* has a much larger, thicker, fleshier and blunter tongue.

Pterylosis.—The resemblance between *Telespiza* and *Pipilo* in the general pterylosis is so striking as to be remarkable. The head is very fully feathered and has no apteria; above the eye there is more or less evidence of longitudinal rows in the arrangement of the feathers. The upper cervical tract is narrow and well defined and is continuous with the dorsal tract, which is characterized by a rhombic saddle of good size. The femoral tracts are narrow, about 10 mm. long and perfectly defined. The lower cervical tract forks well up on the throat and each branch connects very evidently over the shoulder with the narrow humeral tract. The sternal tracts are moderately wide and are slightly but distinctly separated posteriorly from the ventrals, which are moderately broad and end some distance anterior to the anus. In *Telespiza*, a narrow but quite distinct branch of the sternal tract runs directly upward on the side of the body under the wing for 6-8 mm., at right angles to the main tract; it contains 10-12 feathers. Indications of this tract are present in *Pipilo* but Gadow does not refer to its occurrence in any of the Hawaiian birds examined by him. Possibly its definiteness in *Telespiza* is associated with the ground-loving habits of the bird. While there are only nine primaries in *Pipilo*, there are ten in *Telespiza*, the tenth being short and apparently non-functional; the longer primaries had all been cut in my

specimen, so that I can say nothing as to their relative length. There are nine secondaries in one wing but there seem to be ten in the other; the wing is quintocubital. There are twelve rectrices. While the resemblance to *Pipilo* is marked, except in the number of the primaries, it should be noted that the differences in pterylosis between *Telespiza* and *Loxioides* or *Psittirostra* are trivial and of no significance.

Metatarsus.—The covering of the leg in *Telespiza* is so nearly like that of *Loxioides*, as given by Gadow, that no further description is necessary.

Alimentary canal.—Here again the resemblance to *Loxioides* is so great, no detailed account is worth while. As the bird had been kept in captivity several weeks, the contents of the stomach are of no importance. The crop-like dilatation of the lower end of the cesophagus is marked but there is no real crop. The intestine is about 250 mm. long and is very narrow, its convolutions resembling those of *Loxioides* so closely, that Gadow's figure would do for either bird.

Palatine region.—The bony palate of *Telespiza*, so far as could be determined without a thorough cleaning, resembles that of *Loxioides*, as figured by Gadow, but differs in having a longer interpalatine bone, so that the anterior ends of the pterygoids are separated from the posterior ends of the palatines by a space of 2 or 3 mm.

It is fair to conclude from the sum of these characters that *Telespiza* is, as has generally been supposed, closely related to *Loxioides*, and except for the nostrils, it is more like that genus than any other. In view of the restricted distribution of *Loxioides* and the much wider range of *Psittirostra*, one would naturally have expected the latter to be the nearest ally of *Telespiza*. However as the three genera have, together with *Rhodacanthis*, almost certainly come from a single stock, the failure of the evidence to fulfil this expectation is of no significance.

Finally, I cannot refrain from expressing the opinion, based on the study of Gadow's results in connection with these observations on *Telespiza*, that the apparent resemblance to the Fringillidae is superficial, and that those ornithologists are correct who look elsewhere for the ancestry of the fringilliform birds of the Hawaiian Islands.

A LAST WORD ON THE PASSENGER PIGEON.

C. F. HODGE, CLARK UNIVERSITY, WORCESTER, MASS.

THE question with which we started out two years ago was: Has scientifically adequate search of North America been made for *Ectopistes migratorius*? The answer then was that such a search had not been made. A year ago the fact that no nestings had been discovered and that not a single feather of evidence had been sent in seemed practically to prove that the species was extinct. However, since no definite time limits had been set for the rewards, and since a number of apparently encouraging reports had been received, we were impelled to continue the investigation.

During the season of 1911 satisfactory and practically general publicity had been secured through the educational, agricultural and sporting press. Professor Lockhead has also continued his coöperation for Canada through this season. The final result is: No nestings reported, and there are no undecided cases and no disputes. The slate is clean. None of the rewards were claimed, and, as announced in all published, official statements, all offers of reward terminated Oct. 31.

Many false reports were received, but all except four of these were settled by correspondence. In nearly every such case my informant would describe two eggs or squabs in the nest. It was only necessary to forward a reprint with the late Professor Whitman's emphatic statement that the Passenger Pigeon never laid but one egg — containing also cuts from the excellent photographs recently furnished by the American Museum of Natural History of the eggs and adults of both Pigeon and Mourning Dove — to induce the people to acknowledge that their birds were Doves.

One case, investigated by myself early in May, is deserving of permanent record. My informants reported a flock of ten pairs or more nesting in a grove of evergreen trees, thirty to thirty-five feet from the ground. They could not be induced to tell how many eggs or squabs were in the nests. I found the evergreen trees to be three clumps of large Norway spruces in a farm door-yard. The house stood on a slight elevation in a valley, devoid for the

most part of trees. The case was evidently one of crowding a number of pairs of Mourning Doves into a small, preferred island of nesting sites. Reasons for unusual elevation were also patent. A number of cats were in evidence and the lower branches of the spruce trees drooped so badly that the birds were forced to choose the higher branches. I circled the place and found practically all the Doves, and climbed the trees and examined a number of the nests. There was no evidence of any Pigeons mingled with the Doves in the locality. This report came from Pleasant Valley, New York.

The three other reports which required inspection were investigated by Professor I. N. Mitchell of Milwaukee, who generously donated his time in making the trips. His first journey was to, possibly, the most likely spot on the continent — northeastern Wisconsin. The informant, Mr. Ben Fagg, had seen Pigeons in or near a large black ash swamp. With Mr. Mitchell he attempted to relocate the birds, but the region proved too difficult and the hunt was abandoned. Mr. Fagg insisted on paying the \$5 forfeit, and it was received, but with the understanding that it would be returned, if he could show us Pigeons there later. A portion of Mr. Fagg's letter is cited below in another connection.

In response to insistent reports — informant had lived in Michigan all his life, knew the birds intimately, had located a flock of from 300 to 500, a number of which came to his barnyard daily for salt, etc. etc. — Mr. Mitchell twice visited this man in southwestern Michigan, but could find absolutely nothing but a few Mourning Doves in the neighborhood. The man offered to forfeit not only \$5 but \$10, if he was mistaken in the birds, but when the time came to pay he "did n't have the money."

This concludes all there is to say on the search for nesting Pigeons during the season. My best acknowledgments are due to Colonel Anthony R. Kuser and all those who followed his lead in continuing their offers of rewards for the past season. With the plan as projected two years ago there is no fault to find. It has worked admirably in awakening the country to the problem, and this awakening can, and doubtless will, be utilized in saving other species which are in present danger. It might be in order to suggest in this connection that a committee be appointed which

shall, in coöperation with the Biological Survey, be requested to prepare for discussion at each annual meeting an authoritative statement concerning the American species which are in danger of extermination. Is it not high time that the American Ornithologists' Union take a strong, leading part in presenting to the country problems in this important field?

A number of reports, a few of them seemingly of great probability, indicate that straggling single Pigeons and even small flocks have been sighted during 1911.

Professor J. H. Moore writes from Chicago, July 14, 1911.

"I have seen this bird on two different mornings since July 4, and have taken out grains and other foods and put them near where the bird was seen. I have, however not seen it for several days now. This bird was also observed by another gentleman of Chicago to whom I told the exact location of the bird — a man who has seen thousands of them wild. There is no doubt of the identity of the bird, as I studied it very carefully the second time I saw it." (From letter forwarded by W. C. McAtee.)

Cottage Grove, Wis.

Mr. John E. Mellish reports that he studied for an hour, during a rain, a "large bird" which came from the south about 10 a. m., Apr. 13. It later flew north. He examined it at a distance of 60 feet with a 3 inch telescope with a power of fifty diameters, which revealed every marking distinctly. There was "not a single speck of dark under the ear or on the side of the head in any place." (From a letter forwarded by Prof. I. N. Mitchell, whose acquaintance with Mr. Mellish leaves him in no doubt that he saw a passenger pigeon.)

Paul J. Sisson, Senaca Falls, N. Y. writes, Sept. 12, 1911.

"I saw a single male passenger pigeon on Sept. 9 at 3 o'clock in the afternoon, in an apple tree in our orchard. . . . The bird flew direct south."

Mr. James Finch, of Albion Michigan, under date of June 1, 1911, describes what he believes to have been a nesting roost of a flock of nearly 500 Pigeons "in a piece of woods by the river" on his farm. This refers to season of 1910. He writes:

"We did not notice the birds until sometime in July, and soon after harvest we noticed them flying from the river and woods to a wheat stubble about half mile away. 50 or 60 years ago pigeons were very plenty on the same fields. They came then in flocks and all together and these birds came in a flock and went away all at once. Their departure was about the middle of September. They acted so much like the old wild pigeons

that we took for granted that they were the old pigeons.... The boys on the farm killed a few and had them in the pot before I knew it. I never heard of mourning doves going in such large flocks, 800 to 1,000. (This was in the fall when there were many young pigeons.) I presume the birds will be back here next season and I assure you we will investigate them."

James Finch (83 years old).

There is no reason to suppose that this widely migratory species would return to any particular locality to nest, and I have not heard from Mr. Finch again. I was unable to secure any feathers by which to identify the birds which were killed.

From another letter dated Apr. 3, 1911: Arcadia, Ind.

"On March 28th last about 100 passenger pigeons were seen to pass over my father and I about 50 feet above our heads. My father having seen them by the thousands several years ago can firmly swear that they were passenger pigeons. They came from the southwest and were last seen flying northeast. (The time was given in a subsequent letter as 3 p. m.)

"We live in Hamilton Co. about 28 miles north of Indianapolis."

(signed) Harry Noble.

The following is quoted from a copy of a letter forwarded to me by Dr. A. K. Fisher.

Davidson, Mich., May 30, 1911.

"It may be of interest to you to know that I saw a flight of between 50 and 100 wild pigeons — the so called passenger pigeon — *E. migratorius*, I think you scientists name them.

I was in the Northeast corner of Burton Township, Genesee County, Michigan, at the time. A small boy with me cried out "O see the geese, no ducks." I looked up and there they were, less than 300 feet over head, in the irregular constantly shifting formation, I remember so well. I saw millions of them when a boy, tens of thousands of flocks and shot not a few. There can be no mistaking them. They flew swiftly, almost due north while over head, but shifting westward at short intervals and disappeared flying almost due northwest.

I have not seen one before in more than forty years as nearly as I can recall."

(Signed) Ernest Hollenbeck.

Mr. Ben Fagg finds the Pigeons after he failed to show them to Mr. Mitchell and writes him as follows:

Algoma, Wis., Sept. 23, 1911.

Prof. I. N. Mitchell,
Milwaukee, Wis.

Dear Professor: Pardon for delay in reply to your letter of Aug. 14. Had relinquished my position on the Record for the sole purpose of looking

after the pigeons and waited until I had something satisfactory to write you. Following is the result of my observations and experiences.

Could not get a glimpse of the birds until last week, when they came out of the deep woods, in small flocks to feed in the fields as usual just before migrating. In the meantime I had gathered all the data possible from people who had seen them during the past two years.

As rewards are about to expire and there was danger of the search being given up entirely, I carried a shotgun with me to wound and capture or kill one just to prove absolutely that they make their summer home in this locality.

At about 8 o'clock on the morning of the 23d inst., while in the same locality that you and I visited and at the spot where I had seen that young one, I saw a full-grown male pigeon strutting along upon the road, in plain view and within easy shooting distance. It was such a fine bird I did not shoot but stood gazing at it until it flew away. Am satisfied that in the immediate vicinity is to be found the nesting place. Later in the day I saw a small flock whizzing across the fields, but although I chased nearly all forenoon, I could not get near them.

(Mr. Fagg then gives a list of several persons who have seen the pigeons during this season and last.)

"At Gregor, a couple of weeks ago a passenger pigeon was shot and killed. It was cooked and eaten before the diners discovered what a rare bird they had partaken of. From description obtained, I am sure that the bird was a true *Ectopistes migratorius* Linn. . . . By the time that they return in the spring proper measures should have been taken for their protection. Altho the nests have not been discovered, there is ample proof that they summer in this big swamp and vicinity."

Very truly yours,

Benn Fagg.

A final letter contributed by Mr. Chapman is interesting as indicating how many Pigeons a man in a most likely locality has claimed to have observed during the past 19 years.

Mr. Frank M. Chapman, Editor Bird Lore.

Dear Sir:

In the last issue of Bird Lore I noticed two items in regard to the extinction of the wild pigeon. I saw one wild pigeon at Gulliver, Schoolcraft Co., Michigan about 1892. Again at the same place, one came into my yard, where I watched it from a distance of a few feet for several minutes; the time being May, 1903. At Newberry, Luce Co., Michigan I saw one wild pigeon on each of the days Oct. 13 and Oct. 24, 1909, I saw a small flock June 9, 1910 at Newberry. On two other occasions I have seen birds which may have been and probably were pigeons but owing to unfavorable conditions of observation I am unable to identify the birds with certainty.

Yours truly, Ralph Beebe, Newberry, Mich.

Jan. 9, 1911.

Do such letters constitute sufficient warrant for continuing the investigation a third season? The correspondence for the season will not be complete until, probably, Jan. 1. If decisive evidence does come in, that the species still survives anywhere it may determine future action.

The nightmare of the whole situation has been that the last survivors of this great species were being ignorantly shot off. Our two years' active search has developed considerable verbal, but no tangible, evidence for this. The latest in this line is the following — which has been given wide publicity (not by me) in the daily press as definite proof that Passenger Pigeons are still being shot. The remains of another Mourning Dove came in from Maine the day after.

Dr. C. F. Hodge,
Dear Sir:

One day recently, while out hunting, I shot a bird and had it mounted by one of our leading taxidermists. It proved to be a "Passenger Pigeon" (*Ectopistes migratorius*). I think it is a young bird as it has dark spots on the back. Please reply giving me some more information concerning this bird.

Yours truly,

Dwight P. Cushman, Hebron, Me.

Oct. 30, 1911.

I did reply, sending leaflets with photographs and underscored boldly in red ink the comparative lengths of the Pigeon and Mourning Dove. I also enclosed the Audubon Association's colored plates of the two birds, and I said:

"If, after examining your bird in the light of the material I am sending you with this, you are still sure that the specimen is a Passenger Pigeon, I would be glad to pay express both ways for a look at it and for the privilege of keeping it a few days to show to the American Ornithologists' Union, which is meeting in Philadelphia soon."

An early express brought a little box with a little stuffed Mourning Dove in it. It went back by return express to Hebron, Maine, express \$.70.

My expenses for the season have been \$99.70. The balance of \$.30 is suggestive. Of this amount Col. Anthony R. Kuser and family voluntarily contributed \$80.

Since writing the above report it has been decided to continue the rewards another season, i. e. until October 31, 1912, as follows:

ONE THOUSAND DOLLARS (\$1000) REWARD

For first information, exclusive and confidential, of the location of a nesting pair or colony of Passenger Pigeons, anywhere in North America; when properly confirmed and if found by confirming party with parent birds and eggs or young undisturbed:

Colonel Anthony R. Kuser will pay a reward of \$300.
John E. Thayer will pay a reward of \$700.

For first nesting discovered thereafter in the following States will be paid by:

John Burroughs, New York.....	\$100.
A. B. F. Kinney, Massachusetts.....	100.
Anonymous, Massachusetts, for 2d find.....	100.
Allan B. Miller, for 1st nesting found in Worcester Co., Mass.....	20.
Edward Avis, Connecticut.....	100.
Harry S. Hathaway, Rhode Island.....	100.
Worthington Society, New Jersey.....	100.
John Dryden Kuser, for 2d nesting found in New Jersey.....	10.
Henry W. Shoemaker, Penna. \$200. (adds \$25, if nest is protected).....	225.
W. B. Mershon, Michigan.....	100.
R. W. Mathews, Minnesota.....	100.
Ruthven Deane, Illinois.....	50.
John E. Thayer, Me., N. H., Vt., Ont., Wis., \$100 each.....	500.
John Lewis Childs, for first three nestings not entitled to any of the above rewards, \$200 each.....	600.

The purpose of these offers is to secure an intelligent search of the American continent for breeding Pigeons in the hope that, if found, the species may be saved from extermination.

All above rewards are offered solely and only for information of location of undisturbed nestings. We do not desire possession of any birds, alive or dead, but are working solely to save the free, Wild Pigeon.

As soon as a pigeon nesting is surely identified write the undersigned, who will arrange for confirming party and for payment of the reward. All rewards not claimed by Oct. 31, 1912, will be withdrawn.

Signed, C. F. HODGE,
Clark University, Worcester, Mass.

THE VALIDITY OF THE RED-LEGGED SUBSPECIES OF
BLACK DUCK.¹

BY CHARLES W. TOWNSEND, M. D.

IN April, 1902, Mr. William Brewster described a northern race of the Black Duck,—then known as *Anas obscura*,—under the name of *Anas obscura rubripes* or the Red-legged Black Duck the chief characteristics of which were the large size, the coral red legs, the yellow bill, the coarse spotting of the entire throat and the grayish edging of the feathers of the crown and nape. This form was well known to occur in winter on the New England coast, and Mr. Brewster referred four of the breeding Black Ducks which he had examined to this new race. These specimens came from northern Labrador and the Hudson Bay region. He referred breeding specimens from Newfoundland to the older race, but he admitted that he had "none from any locality south of the Gulf of St. Lawrence which were taken at the height of the breeding season." He inferred, however, that these belonged to the smaller race with brown or slightly reddish legs, dark or olive green bills, buffy and immaculate, or but slightly spotted throats, and dark crowns and napes.

It should be noted here that not only the color of the legs, but several other factors correlated therewith distinguish these two races. I wish to emphasize this fact for ornithologists are apt to speak as if the color of the legs was the only distinguishing feature.

In April, 1905, in "The Birds of Essex County," I gave several facts which suggested that *rubripes* might be the adult male of *obscura*, and "assuming for the sake of argument" that this was the case, I pointed out very similar facts in the case of the Red-breasted Merganser where the winter birds in New England are largely old males, while the females and young go south. In conclusion I said: "These observations are of course insufficient for definite deductions, and are offered merely as a contribution

¹ Read at the Twenty-ninth Stated Meeting of the American Ornithologists' Union, November 14, 1911.

to the study of the subject. I have made no observations on the adult male breeding bird in summer in Essex County, and as far as I know this has never been done. Its value in the discussion is obvious." I should have added that as the female often assumes masculine characters with age, it is possible that this fact may explain the existence of female *rubripes*. From the data then at hand, I believe that my position was a logical one, and that one could argue both for and against the validity of *rubripes* as a subspecies. The proofs were still lacking.

In July, 1908, the fourteenth supplement of the A. O. U. Checklist was published in which the name *Anas obscura* was changed to *Anas rubripes*, and the following statement made: "The name *Anas obscura* GMELIN, 1788, proves to be preoccupied by *Anas obscura* PONTOPPIDAN, 1763, for an old world species, and no other name being available, *rubripes* of Brewster is adopted as a substitute. (RICHMOND, MS.) There is some question as to the validity of the form recognized as No. 133a, [the Red-legged subspecies of Brewster] which, by the above action, is now cancelled."

Notwithstanding this statement of skepticism as to the validity of the two races, the next supplement, published in July, 1909, admits its belief in them by recognizing *Anas rubripes tristis* or Black Duck on the basis of a paper on the subject by Mr. Brewster in the previous April, in which, however, no new facts are adduced.

In October, 1909, Dr. Jonathan Dwight maintained that the differences between the supposed races were "exactly the ones that distinguish old birds from young whether they occur in the United States or in Canada" and he added that his evidence on this point was "conclusive."

To this Mr. Brewster replied in July, 1910, and showed that none of Dr. Dwight's evidence was conclusive, and that the only breeding bird examined by Dr. Dwight, shot on Long Island, might easily have come originally from the Bronx or Central Park.

Thus by the whirligig of time and the A. O. U., the Black Duck, so long and familiarly known as *Anas obscura*, becomes a sad subspecies of the upstart Red-leg, and even then its position is disputed, while the erstwhile Red-legged subspecies is put on a secure specific basis. One is forcibly reminded of the behavior of the intruding Cow-bird. The title of this paper should therefore have been

"The validity of the Black Duck," but as that seemed almost insulting to our old friend *obscura*, I have adopted the present title which, although perhaps not entirely correct, will, I believe, readily be understood.

The only way definitely to decide this question is by the observation of native New England birds during a period of several years from their hatching out, or by the observation of breeding birds. Both of these observations I have been fortunate enough to make, for I have watched two pairs of Black Ducks, caught in the down in Massachusetts, from June, 1909, until June, 1911, when one pair had nested. Careful notes of these birds were taken from time to time, and, as far as this experiment goes, it certainly bears out Mr. Brewster's statements, for the breeding birds in their third spring were typical *tristis*.

The birds were captured in the down in Hudson, Massachusetts, on July 15, 1909, and came into the possession of Mr. John Golding of South Sudbury, to whom I am much indebted for his interest and assistance. There were originally five birds, three males and two females. These I labelled on October 2, 1909, by fastening numbered aluminum bands on their legs, and I noted the colors and markings of each. They were kept in a small enclosure out of doors, in which was a pool of water. All thrived but one male that soon died. I visited them again in January, March, July and November, 1910, and in June, 1911. At the last date one pair had died, and the other pair had been transferred to Medfield where I saw them. This pair was given considerable freedom in an enclosure in a natural meadow in which were pools of water, and they had nested. At each visit the birds were caught separately and examined critically in the hand, and the colors of bill and feet and the markings noted down without reference to any preceding notes.

When four months old one of the females had a pure buffy throat, while the other female's throat had a few scattered spots on it. All three males had more or less fine spotting on a buffy ground. The bills of the females were dark greenish black, their tarsi brownish, while the bills of the males tended more to greenish yellow and their legs to orange. The next spring the bills of the males were slightly lighter in color, but by no means yellow, and

their tarsi were possibly a little brighter orange. A study of the plumage showed, however, no suggestion of either an eclipse or a nuptial dress. In the third spring the appearance was essentially the same. The surviving male had a dark crown and nape, a buffy throat, fairly well, but not thickly spotted, a greenish yellow bill and orange feet,— not by any means the coral red feet of *rubripes*. The female had a dark olive-green bill, dirty yellow tarsi and an unspotted buffy throat. Their size was that of the smaller race.

Wood Ducks kept in the same enclosures changed from juvenal to adult plumage, and from eclipse to nuptial plumage, so there seems no reason why Black Ducks should not have changed if it was normal for them to do so. The fact that a pair bred showed they were living under very normal conditions.

That there are distinct racial differences between *rubripes* and *tristis* as originally maintained by Mr. Brewster seems to be thoroughly borne out by these observations carried on during three successive springs under very natural conditions. Yet it might be maintained that the period of these observations was too short, or that the confinement interfered with natural conditions. Be that as it may, these observations are offered for what they are worth as a contribution to the study of the subject.

BIRDS IN THE MARKETS OF SOUTHERN EUROPE.

BY LOUIS B. BISHOP, M. D.

THE year from August, 1910, to July last was spent by Mrs. Bishop and myself in travel in western Europe and northern Africa. Ornithology was not our aim, and no actual field-work was done anywhere. But I kept my eyes and ears open for birds during all parts of our trip as opportunity permitted, and it has seemed to me that what I noticed might be of some interest to the members of the Union in view of the remarkable sentiment for bird protection that has arisen in our country in the last few years.

Only once did we stay over two weeks in a place, and that was in Venice, where the birds for sale in the markets proved so interesting that six weeks had passed before I could tear myself away. You all know no doubt that small birds are sold for food in southern Europe, but the extent of this traffic was astounding to me. And in view of this annual destruction I was much interested to learn what I could of how plenty birds are in regions likely to have been affected by this slaughter.

We reached Venice on October 15, for one of us the first visit to what I think the most fascinating city in the world, and for the other a return after nineteen years. Naturally our first days were fully occupied with other matters, but on the morning of October 24 I visited the central market, and what I found there in the bird-line proved so interesting that Oct. 26, 29 and 31 saw me there again, as did Nov. 1, 2, 3, 5, 7, 8, 10, 12, 14, 15, 16, 17, 19, 21 and 22. Birds were there in profusion from Ducks to Kinglets in the early morning, hung in great bunches above the stalls, but by 9 A. M. most of them had been sold. Ducks and Shorebirds occurred in some numbers, but the vast majority were small Sparrows, Larks and Thrushes. These were there during my visits by the thousands if not tens of thousands. To the market they were brought in large sacks, strung in fours on twigs which had been passed through the eyes and then tied. Most of these small birds had been trapped, and on skinning them I often could find no injury except at their eyes. One of these sacks I examined on Nov. 3 contained hundreds of birds, largely Siskins, Skylarks and Bramblings, and the same species constituted the vast majority of a similar sack noticed on Nov. 17, but in the latter there were many Fieldfares. For Oct. 29 my notes say "Market full of small birds, largely Siskins, hanging in bunches by thread passed through neck and head"; on Oct. 31, "Market full of small birds, chiefly Bramblings, but many Chaffinches and Hawfinches." Again on Nov. 8 I write "Market full of fresh small birds," on Nov. 10 "Many large birds"; and on Nov. 14 "Many small birds, chiefly Bramblings and Siskins." As a rule the small birds that were not sold in the early morning were skinned or picked and their tiny bodies packed in regular order, breast up, in shallow tin boxes and exposed for sale.

During these visits to the Venetian markets I identified sixty species, and procured specimens of most. As nearly as I can remember small birds cost from two to five cents apiece, Thrushes, Shorebirds and Snipe from five to fifteen cents; Coots, Ducks, Partridges and Woodcock from 20 to 60 cents, and Pheasants, of which I saw very few, about \$2.00. For example I paid \$2.15 on Nov. 8 for 1 Woodcock, 1 Jay, 2 Starlings, 2 Spotted Crakes, 1 Song Thrush, 1 Gold-crest, 1 Long-tailed and 1 Great Titmouse, 1 Pipit, 1 Redstart, 1 Skylark, 1 Greenfinch, 1 Bullfinch, 1 Redpoll, 3 Linnets, 2 Goldfinches, 6 Siskins, 3 Reed Buntings, 3 Bramblings and 5 Chaffinches; and on Nov. 10, \$3.25 for 2 Coots, 1 Water-Rail, 1 Spotted Crake, 1 Sparrow Hawk, 2 Woodcock, 1 Common and 1 Dusky Redshank, 2 Dunlins, 1 European Curlew, 2 Kingfishers, 2 Greenfinches, 2 Wrens, 1 Great and 1 Blue Titmouse, and 1 Redbreast. No doubt I paid over regular rates, as I could speak little Italian and the market men knew I wanted them to stuff.

No Gulls were seen, so apparently they are beyond even the Italian appetite, but a Little Grebe (*Colymbus flaviatilis*) was found once and once a Sparrow Hawk (*Accipiter nisus*).

Of Ducks, Widgeons (*Mareca penelope*) were common, and Teal (*Nettion crecca*), Mallards (*Anas platyrhynchos platyrhynchos*), Shovellers (*Spatula clypeata*) and other species occurred more or less frequently. Of the Rails I noted Water Rail (*Rallus aquaticus*), Spotted Crake (*Porzana porzana*), Coots (*Fulica atra*) and Gallinule (*Gallinula chloropus*). Among the Shorebirds were Woodcock (*Scolopax rusticola*), Common and Jack Snipe (*Gallinago gallinago* and *Limnocryptes gallinula*), Greenshanks (*Glottis nebularius*), Common and Dusky Redshanks (*Totanus totanus* and *Totanus fuscus*), European Curlew (*Numenius arquatus*), Dunlins (*Pelidna alpina alpina*), Lapwings (*Vanellus vanellus*) and Black-breast Plover (*Squatarola squatarola*).

Of the Grouse and Partridges I noticed Red-legged and Gray Partridges (*Caccabis saxatilis* and *Perdix perdix*).

Blackcocks, Pheasants and *Tetrastes bonasia*, Kingfishers (*Alcedo isspida*), I found only once.

Skylarks (*Alauda arvensis arvensis*) were there in great numbers and sometimes Calandra (*Melanocorypha calandra calandra*) and

Crested Larks (*Galerida cristata cristata*) appeared. Starlings (*Sturnus vulgaris vulgaris*) were common and there were a few Jays (*Garrulus glandarius glandarius*). But of all the birds in the market the majority belonged to the great sparrow tribe. Siskins (*Spinus pinus*), Bramblings (*Fringilla montifringilla*), Chaffinches (*Fringilla coelebs coelebs*) and Tree Sparrows (*Passer montanus montanus*) suffered most severely, but I noticed also Hawfinches (*Coccothraustes coccothraustes coccothraustes*), Bullfinches (*Pyrrhula phrrhula europea*), Yellow Hammers (*Emberiza citrinella citrinella*), Goldfinches (*Carduelis carduelis carduelis*), Greenfinches (*Ligurina chloris chloris*), Italian House Sparrows (*Passer italiae*), Redpolls (*Acanthis linaria linaria*), Linnets (*Acanthis cannabina cannabina*), Crossbills (*Loxia curvirostra curvirostra*), and Reed Buntings (*Emberiza schæniclus schæniclus*).

Redbreasts (*Erithacus rubecula rubecula*) were common and Stonechats (*Pratincola torquata rubicola*) and Redstarts (*Phoenicurus ochruros gibraltariensis*) rare. Great Titmice (*Parus major major*) were seen almost daily, and occasionally Blue (*Parus cæruleus cæruleus*), Coal (*Parus ater ater*) and the Longtailed (*Ægithalos caudatus irbii*). Wrens (*Troglodytes troglodytes troglodytes*) were seen several times and the Goldcrest (*Regulus regulus regulus*) once. Rock and Meadow Pipits (*Anthus spinoletta spinoletta* and *Anthus pratensis*) and White Wagtails (*Motacilla alba alba*) were uncommon, but the Thrushes, such as the European Blackbird (*Merula merula merula*), Fieldfare (*Turdus pilaris*), Redwings (*Turdus iliaca*) and Song Thrushes (*Turdus musica*) were all abundant.

That killing song-birds for food is not confined to the poor Italians I learned on Oct. 27, when one of the most prominent and wealthy Italian ornithologists—a delightful man—told me he had shot 180 Skylarks and Pipits the day before, and that his family liked them far better than other game. Our prejudice against selling game does not exist in Europe, and this same ornithologist told me he often shot 200 ducks in a day at his shooting-box, sending to the markets what he could not use himself. On Nov. 1, 1910, he shot 82 ducks and on Nov. 8, 103, chiefly Widgeon and Teal.

In Florence I visited the central market on Nov. 26, 28, 29, 30, Dec. 1, 2, 3, 5, 6, 7, 8 and 9, and found birds even more plenty than

in Venice. Pheasants, Grouse, Partridges (*Caccabis petrosa* and *Perdix perdix perdix*), Ducks, Woodcock, and Snipe especially were more abundant than in Venice, probably because Florence is a wealthier city; and Skylarks, Thrushes and Redbreasts were found in very large quantities. Corn Crake (*Crex crex*), Thickknee (*Ædicnemus ædicnemus*), Green Sandpiper (*Helodromas ochropus*), Dotterel (*Eudromias morinellus*) Golden Plover (*Charadrius apricarius*), Magpie (*Pica pica pica*), Corn Bunting (*Emberiza calandra calandra*), Migratory Quail (*Coturnix coturnix*), Green and Spotted Woodpeckers (*Gecinus viridis pronus* and *Dryobates major pinetorum*), Wood Larks (*Lullula arborea*), Gray Wagtails (*Motacilla boarula boarula*), Brown Creeper (*Certhia familiaris macrodactyla*), Nuthatch (*Sitta europæa cæsia*), Hedge Sparrow (*Prunella modularis modularis*), Black-cap, Black-headed and Fantail Warblers (*Sylvia atricapilla atricapilla*, *Sylvia melanocephala melanocephala* and *Cisticola cisticola cisticola*), Missel Thrush (*Turdus viscivorus viscivorus*), Ring Ouzel (*Turdus torquatus alpestris*) and Rock Sparrow (*Petronia petronia petronia*), were species that I had not noticed in Venice. Here too we saw often, bunches and baskets of small birds, chiefly Redbreasts, hawked through the streets, and I saw in the little town of Fiesole on Nov. 27 a bunch of Fieldfares, Redwings and Blackbirds hanging outside a store.

Every Sunday that we went into the country we met numbers of Italians out shooting, and their bags seemed to consist wholly of small birds.

At Genoa, San Remo, Monte Carlo and Nice, between Dec. 13 and 29, I did not visit the central markets, if such exist, but saw frequently bunches of small birds hanging outside stores. The only new species noted was a Blue Rock Thrush (*Monticola solitaria solitaria*) at Monte Carlo on Dec. 22.

A gentleman who spent the fall in an automobile trip through the west of France from Brittany to the Pyrennees tells me he noticed these bunches of small birds for sale in every town he visited.

In Algiers I visited the markets on several occasions, but saw no birds smaller than Thrushes for sale; but there were plenty of Song Thrushes on Jan. 6, 7, 9 and 11; a Frenchman shooting Thrushes I saw near Algiers on Jan. 2, and two natives with a bag

of a Shrike (*Lanius excubitor algériensis*) Blackbirds (*Merula merula algira*) Song Thrushes and Redbreasts (*Erithacus rubecula witherbyi*) we met some twenty miles from Algiers on Jan. 10.

January 17 was market day at Setif on the high plateau in the interior of Algeria, and there I noticed three natives with about 100 Calandra Larks and Skylarks (*Alauda arvensis arvensis* and *A. a. cantarella*) for sale.

At Biskra, an oasis in the northern border of the Sahara, the natives do not eat birds, so none were for sale in the markets, but I found Sand Grouse (*Pterocles arenarius*) and Red-legged Partridges at the store of a Frenchman. In Constantine on Feb. 5 and 6, I saw a few Sky and Crested Larks (*Alauda arvensis arvensis* and *Galerida theklae superflua*) and Song Thrushes in the market, and Thrushes were on the bill of fare at Hammam Meskoutine. Behind the hotel there I noticed on Feb. 8 the feathers of hundreds of Thrushes, Starlings and Blackbirds that had been plucked for the guests.

In Tunis I visited the large central market — one of the finest I saw abroad — on Feb. 11, 12, 13, 14, 17, 18, 19 and 20, and found it to contain hundreds of Starlings (*Sturnus vulgaris vulgaris*) Sky, Crested and Calandra Larks (*Alauda arvensis cantarella*, *Galerida cristata macrorhyncha* and *Galerida theklae harterti*) and Song Thrushes, besides an abundance of what we consider game.

In Sicily Mr. Whitaker, the eminent English ornithologist, told me small birds were not sold in the markets, but between Feb. 23 and March 12 we frequently saw men out hunting especially on Sundays.

At Naples on Sunday, March 19, Plover was served on the hotel table, and we noticed a man out in the country with a gun. On March 20, I saw a man with a bunch of Ruffs (*Machetes pugnax*), Black-tailed Godwits (*Limosa limosa*), Lapwings and small birds for sale, and on March 16 on the Via Roma, the busiest street of the city, we met a man with a number of Greenfinches sitting on his arms and shoulders. To a cursory glance, these birds seemed well but stupid. Why they did not fly away, for their wings were uninjured, is probably explained by the following clipping from the Italian Gazette for Dec. 1, 1910, an English paper published in Florence.

"The Blinded Birds.

In consequence of a letter which appeared in our issue of October 27, the Florence Society wrote to the head of the Municipal police, Cav. Grasselli, calling his attention to the fact that in spite of the injunction issued by the Commissario Prefettizio, blinded birds were still being sold in the Commune of Florence, namely, in a shop in the centre of the town. The Municipal police at once received orders to see that the injunction was respected, and a number of fines quickly put a stop to the surreptitious traffic.

When the Commissario (Cav. Ferrara) took the step of prohibiting the blinding of birds and the sale of those already maimed, the Florence Society sent a copy of his circular to all the municipalities in the province, asking them to follow suit. To their honor four — the communes of Fiesole, Tavarnuzze, Cutigliana and Pontassieve — readily expressed their intention of doing so, but the remainder have treated the request with indifference.

But even should the Municipal authorities be backward in carrying out the law, it is in the power of anyone to denounce to the Municipal police of any commune acts of cruelty of this kind and to exact a prosecution. The Pretor of Arezzo, Signor De Santis, recently fined a man 100 lire, the maximum, on the information of a private individual, and that sentence is a precedent which cannot be ignored.

No doubt the practice of blinding birds will come to an end in Florence and the neighborhood. When the birds thus treated can no longer be put on sale without the risk of a fine, it will interest no one to commit such a horror. The birds were blinded chiefly in spring, though the Florence Society has information that cases have occurred even in winter."

In Rome Partridges were served at the hotel in early April; April 10 I saw a man out shooting between Rome and Florence, and in the market at Florence on April 11 were large numbers of Pheasants, Woodcock, Snipe, Redshanks and other Shorebirds, but no small birds, as it is against the law to sell them at that time.

At Dresden on May 18 and Halle on May 25, Gulls' eggs were for sale in the markets, and game was on the bill-of-fare in Dresden. Our last experience with game on the table was on July 4, when

"Delaware Snipe" was served on the steamer some few hundred miles out of New York.

In England at Flamboro Head in Yorkshire on June 19, eggers were taking for market the eggs of Murres, Razor-billed Auks, Puffins, and Kittiwakes, as they have for generations, and the English treatment of the Wood Pigeon the following extracts from the "London Daily Mail" for last March will show.

"Pigeon Plague
Slaughter in the Isle of Wight.

A great slaughter of wood pigeons took place yesterday all over the Isle of Wight, where farmers have suffered severely from the depredations of the birds. It is estimated that quite a thousand guns were enrolled for the campaign, among them being landowners, occupiers and shooting tenants, who were publicly invited to take part. The guns were stationed in woods and coppices over a wide area during the afternoon, and they remained there until dark. Some large bags were obtained.

In the neighbourhood of Saffron Walden, Essex, another district where the birds are a plague, farmers, sportsmen and gamekeepers, will tomorrow renew the combined attack of Saturday last upon marauding flights of wood pigeons. Last Saturday nearly 200 guns turned out. Tomorrow it is expected that nearly double the number will take up the assault.

The lesson of the efficacy of such an assault was first taught by the farmers of Devon and Somerset a few years ago, when great combined shoots were organized as a result of the havoc wrought by these feathered aliens among the green crops of the neighbourhood. Many thousands of wood pigeons fell as a result, and the plague was considerably minimised, if not absolutely brought to an end, over a large area of country.

The plan of campaign last Saturday was to make a simultaneous attack on the birds as they returned in the late afternoon from the fields to their roosting-trees.

It was decided to man all likely places which the birds might pass on their homeward flight, and many such places were manned. The destruction already wrought shows the wisdom of combination in this direction, and the two more Saturday assaults which will

complete the campaign should, with good tactics, complete its success."

"War on Wood Pigeons.

The war against wood pigeons was continued in nearly all the southern counties yesterday.

'Our advice to all farmers who are suffering from the plague of the birds is, "Shoot them." ' Mr. A. G. L. Rogers, of the Intelligence Department of the Board of Agriculture and Fisheries, told a 'Daily Mail' representative.

'It is best to get at them either at day-break or sunset, and scare them out of their roosting places, or the haunts they flock to for water. Half-measures are not much use; wholesale extermination is the policy if the farmer wishes to preserve his crop.

'In the north they are not troubled anything like to the same extent. There is not the same temptation as in the south. They flock to the southern counties because there is far more in the shape of food-stuff.'

How great is the destruction of small birds at the hands of man in Europe and northern Africa these pages will give an idea, but of the actual number, especially of Skylarks, slaughtered for food no computation is possible. It probably reaches the hundred thousand. And this destruction of small birds during the migration for food by the Italians has been going on for years. Mr. E. A. Samuels in "Mammalogy and Ornithology of New England," published in 1863, quotes Frederick de Tschudi, the president of the Agricultural Society of Canton St. Gall, Switzerland, as writing "At the period of their spring migration, and still more in autumn, Italians are seized with a mania for killing small birds." "To form some idea of the slaughter which for weeks together is the chief delight of the people of Italy it is sufficient to mention that in one district on the shores of the Lago Maggiore the number of small birds annually destroyed amounts to between 60,000 and 70,000, and that in Lombardy, in one single *roccolo*, 15,000 birds are often captured daily. In the neighborhood of Bergamo, Verona and Brescia, several millions of birds are slaughtered every autumn."

In *Bird-Lore* for July-August, 1907, Mr. Francis H. Herrick

gives Signor Nigro Licò as quoting "It is estimated that in all Italy the annual hecatomb amounts to ten millions of individuals, among which the Landsteiner of Wiholsburg reckons three millions Swallows," and also as saying "if after all this there can still regularly occur that enormous slaughter of millions of little birds, so that they can be seen in the markets like sacs full of grain, then why condemn absolutely hunting by means of nets, since by this very showing the method of hunting has not yet caused grave damage?"

But what of the reverse of the shield? Are small birds rare or common throughout Europe? This I tried to determine as far as I could in the limited opportunities at my disposal, for most of our time was spent in large cities, and the trip to Flamboro Head in June was the only one taken in which birds were the object sought. On our walks or drives in the country I noticed the relative abundance of birds as far as possible, and trust the following brief extracts from my note-book may be of interest.

Of the ten days in the beginning of September, 1910, which we spent in England, six were devoted to London, still I note that Lapwings, Rooks, Wood Pigeons and many small birds were plenty near Chester, and that "I have been impressed by the great abundance of birds in England as seen from the train and driving, in spite of cloudy weather." At Lucerne on Sept. 21 large Swifts were seen, at Oberammergau on the 24th, Coal Titmice and Gold-crests; Mallards were common and tame at König See on October 11, and we met a large flock of Bramblings at Innsbruck on the 13th.

During our stay in Venice, Black-headed Gulls (*Larus ridibundus*) frequently were abundant in the Grand Canal, and Starlings and Italian House Sparrows were often noticed. Birds were not plenty along the Riviera, Dec. 19 to 25 as a rule, but we noticed many small ones in the shrubbery at Monaco on Dec. 20, and a large flock of some very noisy species in some trees at Mentone on Dec. 22. In the groves and bushes in the outskirts of Algiers small birds were abundant during the first part of January and among them I identified Crossbills. In the open country further from the city, Skylarks and Pipits were numerous, and on an automobile trip of about 80 miles which we took on Jan. 10, I wrote "Country

open and full of birds of many species." In the Kabyle country in the Atlas mountains, where we were Jan. 14 to 16, birds were not very plenty, but I noticed Common Crows, Kestrels and Harriers from the train, and a very large flock apparently of Thrushes collecting in a wooded swamp toward evening. On the open plains of the high plateau of Algeria, across which we passed by train, birds were not very common, as was to be expected in such a country in the depth of winter; still I noticed frequent flocks of small birds and was able to identify Skylarks and White Wagtails. In the palm-groves of Biskra small birds were again plenty, and some at least were European species.

Farther east in the interior of Algeria I noticed from the train on Feb. 3, very many Lapwings and Common Crows and large flocks of small birds, and small birds were abundant at Hammam Meskoutine on Feb. 8. On Feb. 11 I note "saw many birds, largely larks, near Carthage," and on Feb. 15 and 16, during an automobile trip of some 150 miles between Kairouan and Tunis, I write "saw great numbers of Larks, Sky, Crested and Calandra, very large flock of Ducks, also Lapwings and other species." Both these days at Kairouan and Tunis we had Larks for dinner.

In Sicily small birds seemed by no means abundant, as might be expected from the generally treeless and bushless landscape, but in the old quarries at Syracuse, now filled with luxuriant vegetation, birds were again abundant. Near Naples the latter part of March birds seemed uncommon, and the same was true of the trip from Naples to Rome, and from Rome to Florence; but Kestrels (*Falco tinnunculus*), appeared to be breeding in the capitals of the pillars at St. Peter's at Rome on April 4, others in the niches in the Leaning Tower at Bologna on April 20, and still others in the Amphitheatre at Verona on April 26. In the environs of Ravenna on April 18, from the train between Ravenna and Milan, Milan and Como, and from Milan to Venice, and about the Italian Lakes especially the latter part of April, birds were plenty, and I wrote "noticed birds fully as frequently as at home." In Venice the last of April large Swifts wheeled over the canal and buildings in good numbers, and there were many birds in the Public Gardens on April 27. At Kahlenburg near Vienna on May 13, and at Babelsburg near Berlin on May 17, birds were abundant, and I

noted in short walks, Blackbirds, Chaffinches, Starlings and several species of Tits, and none of the vegetation showed any sign of injury by insects.

We reached England in early June, but except for a short trip to Flamboro Head in Yorkshire, and a couple of days at Southampton, during which we visited the New Forest, our time was spent in London, and even in London Wood Pigeons were common in the parks. But one cannot visit rural England at all, either by train, motor, carriage or on foot, without being impressed by the abundance of birds; birds are everywhere, Lapwings fly out of almost every field, in spite of the fact that their eggs have been sold as delicacies for generations, Skylarks are constantly in the air, Rooks dot the landscape with black, and thousands of sea-birds line the cliffs at Flamboro Head although their eggs are collected each day. My impressions at the conclusion of our long journey, as I wrote them at the time, were that "birds are quite as abundant in Europe and especially in England as with us, and I have been greatly impressed by the absence of insects and worms everywhere, along the roadsides, in the parks and woods and in the fields. No worms hanging from the trees, no mosquitoes, no aphides on the roses, and nothing showing signs of having been eaten; all so different from our country in June."

Why this is so, that after the great slaughter in fall and winter birds are so abundant in spring and summer I cannot explain, but both of us commented on the fact that we almost never saw a cat.

ADDITIONS TO THE KNOWN ORNITHOLOGICAL
PUBLICATIONS OF C. S. RAFINESQUE.

BY SAMUEL N. RHOADS.

IN looking up references to the published writings of Constantine S. Rafinesque for material relating to Birds, I have secured verbatim copies of two interesting contributions of his to the Kentucky Gazette. These, evidently, were not known to Dr. C. W. Richmond when he published reprints of Rafinesque's contributions to Ornithology in 'The Auk', Vol. 26, 1909.

So rare is the Kentucky Gazette at this writing, that only one file of it and that quite imperfect is available for reference. This is in the Library of Congress, and through the liberality of Mr. Herbert Putnam I have been able to get copies of the articles referred to. They were published under the sub-title of "The Cosmonist." It will be noted that these are Rafinesque's third and fourth Natural History contributions to the paper, under this heading. It is likely if a complete file of the Kentucky Gazette could be secured that some other references to birds might be found therein, for Rafinesque in his later publication, "The Atlantic Journal," page 208, refers to "twenty numbers" of "The Cosmonist" as having been published.

For an essay on "Rafinesque as an Ornithologist," the reader is referred to the recent issue of "Cassinia" for 1911, published by the Delaware Valley Ornithological Club. The following reprints were considered too long for that article and more appropriate for 'The Auk', in which Dr. Richmond's articles on Rafinesque's writings appeared.

Fortunately for our author, these articles are based on his own personal observations of the birds described and from actual specimens, in contrast to his bird notes founded on the fishy stories which were confided to him by Audubon when the two met on that memorable occasion at Henderson, Kentucky. Indeed these two Kentucky Gazette articles do more credit to Rafinesque from the ornithological standpoint than all the rest of his bird papers put together and atone in no small degree for the curious performances

in this line which he was led to make through his too ready credulity and mad quest after new species and genera.

They give also an insight into his higher self as an enthusiastic admirer and real lover of nature, a phase rarely exhibited in his published writings of later date. Of what extreme interest would be a discovery of his manuscript on the Ornithology of the United States to which he alludes in his remarkable review of Alexander Wilson's work.

"Kentucky Gazette.

Lexington, K. Thursday Morning February 14, 1822.

Page 3, Col. 4

THE COSMONIST — No. III.

On the Birds of Kentucky and a new Swallow.

Among all the tribes enlivening animated Nature, there are few if any, that are so interesting as the Birds; those aerial beings who enjoy the glorious privilege of roaming th[r]ough the atmosphere, and soaring to the clouds, whence they often may look down with pity upon us confined as we are to creep on the ground. Their lively plumage, and elegant forms charm the eyes, while their melodious voices and varied songs delight the ears.

Ornithology or the branch of Cosmomy, which leads us to become thoroughly acquainted with their history and manners, has therefore been cultivated sooner and better than many other branches of natural science. * * * * The splendid works and colored figures of Catesby, Edwards, Buffon, Vieillot, and Wilson, have contributed to make known, the greatest number of the beautiful Birds which live in North America.

The magnificent work of Wilson, published in our country, is well known; and although it has remained imperfect by the untimely death of the author, it stands as a monument of genius, science, and taste. It is also a pity that the worthy author was not aware, that another American Ornithology had been undertaken some years before his (in France, by Vieillot) which has likewise never been completed, where some of his new species were previously described under different names.

The result of Wilson's labors, consist in about 320 figures, belonging to nearly 300 species, among which he has described 56

as new, which might be reduced to less than 50, by comparing them with Vieillot's new species; but increased to about 70, by adding thereto several birds which Wilson did not consider as new, and blended with foreign species, while they are really distinct, and ought to be separated, distinguished and named, as I have done in my manuscript criticism on his work.

Extensive as this number may appear it is less than one half of the real number of our birds. In Ord's Catalogue of the Birds of the United States 573 species are enumerated; but in my Manuscript Catalogue I have ascertained and distinguished above 660 species, among which about 60 species, have been discovered by myself and described as new; Some of these are already published; but the greatest part are only extant in my manuscripts.

Among this number I have already observed and ascertained that upwards of 200 species are found in Kentucky, nearly 40 of which are new for the science of ornithology. These new species belong principally to the Genera or tribes of Warblers, Rails, Hawks, Ducks, Swallows, &c.

Some of our Birds belong even to new Genera, and I published in 1818 in the French Journal of Physics and natural history, the description of a new genus under the name of *Rimamphus citrinus*, to which a single species belongs, which was first discovered in 1808 near Louisville by Mr. Audubon, and mistaken for a Warbler; but it is distinguished from that tribe by its bill open on the sides, and round mandibles. It is besides a silent bird of a pale yellow colour.

There are two species of Swallows in Kentucky, besides several well known species. One of them the red-head Swallow (*Hirundo phenicephala* in ornithology) was already mentioned in my annals of nature No. 1. spec. 16. It is a rare species; grey above, white beneath, with a scarlet head, the bill and feet black.

The second species I shall now describe and call it the Blue Bank-Swallow. I have given it the scientific name of *Hirundo albifrons* which means the Swallow with a white forehead. It is very remarkable by its unforked tail: almost all the Swallows having a large forked tail, and a few species a large stiff and sharp tail; but in this new Swallow the tail is small and truncate, neither sharp, stiff nor forked; this peculiarity occurs also in a South

American species, the Tapera Swallow (*Hirundo tapera*) which is however totally different from ours, being black above and white beneath.

Our Blue Bank-Swallow is a small species, about five inches long: it has a black bill and brown feet. Its face or the space surrounding the bill is black, the forehead white, the top of the head blue; the cheeks, throat and upper part of the rump of a reddish chestnut colour, or rufous, the back is blue spotted with white, the belly of a dirty white, the wings brown, with some yellow spots beneath at the base, and the tail is equal, unforked, truncate and brown.

This pretty Swallow is found on the banks of the Ohio, where it has only been lately noticed; whether it has lately come there from southern regions or had not been noticed heretofore, may be a matter of doubt, but of little consequence. It appears now to be rather common on some peculiar spots, such as near Newport in Kentucky and Madison in Indiana; it comes late in the Spring builds its nest on the high banks of the river and disappears early. Its nest is singular, in the shape of a reversed bottle, with the opening at the end of the neck; the materials being similar to those employed by the common Swallows. This bird is to be seen preserved with its nest in the Museum of Cincinnati: It deserves the further attention of the friends of science.

C. S. RAFINESQUE."

The White-fronted or "Blue Bank Swallow" of Rafinesque, or, to be more brief, the Cliff Swallow of authors, is destined to go down into the history of nomenclature as a distinguished bird. It made so many narrow escapes of being properly named in a binomial sense that it seems a bit humiliating for it to now be snatched from the laurel crown of Thomas Say and transferred, by the rights of priority, to a man whom he undoubtedly despised and certainly ignored. Say was one of the coterie of Philadelphia naturalists that eventually drove Rafinesque and his literary contributions from any recognition by the Academy of Natural Sciences. Whatever Say may have lost, Rafinesque certainly gains greatly in having won, in the priority game of naming and properly describing the Cliff, or Eave or Republican Swallow as

Hirundo albifrons. Say described it in 1823 in the Narrative of Long's Expedition to the Rocky Mountains, under the name "*Hirundo lunifrons*," at least a year later than our Kentucky author's description, as above. It is amusing to read Dr. Elliott Coues' history of the discovery and naming of this species on pages 428-429 of that masterpiece of his, the "Birds of the Colorado Valley." Had he known then of Rafinesque's name for it, we would perhaps have had one more of those epigrammatic paragraphs in which he would have depicted how that eccentric naturalist had stolen the march on all his distinguished contemporaries by a little squib in the Kentucky Gazette. In this connection let us observe that its discoverer names Newport, Ky. as a locality for this species. This town was directly opposite Cincinnati, where Audubon, in 1818, was mounting birds for the Natural History Museum, and it is not unlikely that one of Audubon's specimens was Rafinesque's type!

The second article is as follows:

"Kentucky Gazette.

No. 8. Vol. I. Lexington, K. Thursday Morning, February 21,
1822.

Page 3, Col. 5.

For the Kentucky Gazette.

THE COSMONIST — No. IV.

By winter's gales and stormy winds impell'd,
They leave the briny waves and stray beyond
Their usual haunts, in search of climes unknown.

On the Wandering Sea-birds of the Western States.

Extensive tribes of Birds dwell on the Ocean; they have been met one thousand miles from any land; they fly and skip over the waves, swim and dive in search of food, repose and even sleep on the water; they often defy the storms, and come near the shores merely when the need of laying their eggs compels them to seek convenient places and shelters.

The Sea-birds very seldom wander in the continents, and far from their usual element and food, which consists in fishes, sea-animals and sea-weeds. It was therefore with some astonishment

that I have observed several of them in Kentucky, Ohio, Indiana, &c. Some appear to follow the meanders of the Mississippi and Ohio, and to ramble at a great distance from the gulf of Mexico, their native place, finding probably an adequate food in the variety of fishes swarming in those noble streams.

Pelicans have been seen and shot on the River Ohio, as far as Louisville, Cincinnati, and Portsmouth, nearly 2000 miles from the gulf of Mexico, by the course of the rivers, although only one third of that distance in a direct course. Some few individuals have been seen both in summer and autumn; but do not appear to have raised their young in our rivers.

The other sea-birds which I have observed or noticed in the interior of the western states, belong to the genera of Divers, Gulls, Terns, Phalaropes, Grebes, Sea-ducks, &c. They were seen on the Ohio, Kentucky, Licking river, &c. or even near Lexington and Harrodsburg.

A Loom [sic] was shot near the Kentucky river in the spring of 1821. Several Phalaropes have been shot near Louisville and Henderson. If these birds wandered from the gulf of Mexico, the distance from it in a straight line, was about 600 miles. A Carolina Grebe, (*Podiceps Carolinianus*) was shot at Harrodsburg in March 1821, which came probably from the nearest Atlantic shore of North Carolina, at the distance of 400 miles or more.

These birds must probably be blown from the sea-shore, towards us by some violent storms, and many more in the same predicament may escape our notice. This singular fact in their History deserves however to be recorded.

Among the sea-birds which I have seen in Kentucky, there are two kinds, a Gull and a Tern, which I cannot find described in any book; they might be considered as new species. They must probably have wandered here from the distant shores of the Mexican Gulf and Empire, where many unnoticed birds must exist as yet.

The Gull might be called the wandering Gull: I have given to it the ornithological name of *Larus Marginatus*, which has a reference to its black-edged wings.

Its total length was one foot; but the dimension of the extended wings reached 28 inches. Bill black, feet of an orange color, with

black claws. Head, neck, and belly of a snowy white, back and wings of a pale ash color; but the quills of the wings are white, with a black tip, and the external quill is edged with black, which gives to the whole wing the appearance of having a black edge. The tail is white, and obtuse.

The known species to which it resembles most, is the grey gull, (*Larus canus*) which is found in the United States, and even on our large lakes; but it differs from ours by being much larger, having a yellow bill, greenish feet, several black quills in the wings with white spots &c.

It was shot in January 1821, on a pond near Harrodsburg by Mr. Sutton, and the specimen is in the possession of Doctor Graham of the same town.

The tern or Sea-Swallow may be called the black-headed Tern; I have given it the scientific name of *Sterna melanops*, which implies the same thing.

This Tern was nine inches long from the tip of the bill to the end of the tail, and the dimension of the extended wings was 21 inches. It was of an ash color above, and white beneath with the head, neck and feet blackish. The bill was of a lead color, one inch long, compressed and sharp. The feet had three half-webbed toes, and none behind. The tail was long and forked, white beneath.

This bird is totally different from all the known Terns, and might even perhaps be considered as a new genus, by its long, compressed bill, toes only half-webbed, and want of a hind toe, to which the name of *CHLIDONIAS MELANOPS* might be applied.

It was shot in June 1821, near Harrodsburg, and was preserved by Dr. Graham, in whose possession I saw it.

C. S. RAFINESQUE."

I have consulted with Mr. Witmer Stone, regarding the status of the new species and new genus above described by Rafinesque. We are agreed that *Larus marginatus* Raf. was a Bonaparte's Gull, *Larus philadelphia* (Ord) in winter plumage. It is a synonym of Ord's species, the latter being named in Guthrie's Geography, 2nd Amer. edition, vol. 2, in 1815. *Sterna melanops* Raf. is readily recognized to be a Black Tern in winter or autumn

plumage. The proper specific name of this species is *surinamensis* (Gmelin), given in 1788, so *melanops* is a synonym. The generic (or subgeneric) name of *Chlidonias*, applied to this species by Rafinesque, based, as it is, mainly on the absence of a hind toe, is of peculiar interest, as it appears to have a priority of above 2 months over the previously accepted name of *Hydrochelidon* given this genus by Boie. Boie's name was published in the fifth number of Oken's magazine, *Isis*, for the year 1822. This would make May of that year the date of publication, whereas Rafinesque's name appeared February 21st. Having determined that Rafinesque's species was the Black Tern we can hardly avoid recognizing the tenability of the generic name of which it is the undoubted type, although the character of the hind toe which he mentions was either a deformity or resulted from the work of the taxidermist in preparing the specimen. In other words, no known species of the subfamily *Sterninae* normally lacks the hind toes.

As Rafinesque did not base his separation of this genus from *Sterna* wholly on the absence of hind toes but upon one or two other characters, including those of the bill, it would seem necessary to supersede *Hydrochelidon* Boie by *Chlidonias* Rafinesque and to name the Black Tern, *Chlidonias nigra surinamensis* (Gmelin), unless it be considered that his name is identical with *Chlidonia* Hübner, 1816.

NOTES ON THE SPRING MIGRATION AT TIMBER LINE, NORTH OF GREAT SLAVE LAKE.

BY DAVID E. WHEELER, M. D.

THE spring of 1910 I spent with the Dog-rib Indians. During April we hunted the wooded country between Fort Rae on Great Slave Lake and Fort Enterprise.

Only the foundations of Fort Enterprise are left but the place is accurately located on the Canadian maps from Sir John Franklin's survey. I think no white man has visited it since 1821, the date of Franklin's departure. The clearing about the fort is still well

defined although the appearance of the stumps indicates that no trees have been cut since that great explorer lived there. In other words nature has made no appreciable effort at reforestation in ninety years. The trees in the surrounding grove are at least five hundred years old. We found 1910 to be a very poor caribou year, yet during April our lodge took and used twenty-four, all females or yearlings.

May first I crossed the Coppermine River with one lodge of Indians. About twenty miles out on the Barrens we saw a band of ten caribou, all females or young. We killed only one of these. They were the last females we saw. I got a very strong impression that the caribou wintering between Rae and Enterprise in 1910 belonged to a herd of females, that this herd was almost completely exterminated during the winter and that in consequence there was practically no spring female migration at Fort Enterprise in 1910.¹

At Diri Ti we left the squaws in a grove of large spruce and fir trees — the only grove known northeast of the Coppermine River. Two of the bucks and myself hunted the country west of Conghia Ti, but without success. We then returned to Fort Enterprise to await the migration of the stag caribou. Two of our dogs starved to death and we ourselves were slightly weakened from lack of food.

May 14 one of the Indians killed a Richardson's Barren Ground Bear. It was very fat, and its stomach contained two fish and a ground squirrel but its main food had been berries which had stained the whole intestine purple. A similar stain dyed the intestines of Ptarmigan taken at this season.

May 18 the migration of the stag caribou commenced. It lasted about ten days. The numbers in this herd were too large to estimate. Bands ranging from ten to two hundred were constantly passing. We killed thirty. Then the chief told us to kill no more as we had enough. I saw no females in this herd, and I believe that they had wintered in some place unknown to the Indians.

May 30, we returned to the Barrens. In the woods the snow had melted and the ground was bare but beyond timber line there was enough snow for travel with dog sleds. We went east of north and in six days reached a point near to the spot where the

¹The fur traders at Rae have written to me to say that in 1911 the caribou returned in their usual numbers.

Arctic circle cuts Bathurst Inlet. Every night it froze, and every day there was a heavy thaw; yet at our turning point there was more snow than there had been at our starting point. The first day out we caught up with the migrating stags and saw at a very rough estimate about one thousand of them. These were the laggards, the fat old gentlemen, big and heavy with horns in the velvet and about two feet long. After this we saw fewer each day and the individuals seen averaged younger, thinner and more active.

At our turning point we had reached the vanguard and saw only about two hundred, all of them young — "runners" as the men of Newfoundland call them. These Barren Ground Caribou impressed me as being much more nearly related to the Newfoundland Caribou than to the Woodland Caribou.

On the way back we soon came to bare ground and left our sleds packing out our blankets on our backs. We reached Enterprise June 11. By this time all the caribou were beyond the Coppermine River.

We stayed at Enterprise about a week and then set out for Rae. The first lake crossed was choked with ice but there was open water in all the rest of them.

Seven species of trees were noted. The Spruce (Dog-rib name-*Tsi*). Is found as a large tree to the edge of the Barren Lands, and in isolated groves many miles beyond the line of continuous timber. Stunted, dwarf trees (Dog-rib name *Tchu néetch'oli*, usually translated "the land of little sticks") occur south of timber line and also on the Barrens as an irregular fringe rarely more than a few miles from the large trees. The banks of the Coppermine River below Lac de Gras and the shore of the Southern extremity of Diri Ti are well wooded. No wood is found between Winter Lake and the Coppermine or between the Coppermine and Diri Ti. There is a fir tree (Dog-rib name — *Tsi*), which only grows North of Aiejean Ti,¹ found wherever the Spruce reaches large size, even in the groves far out on the Barrens. It does not occur south of Aiejean Ti. The trees are more spreading and even than the Spruce, and their bark is thin, pale, smooth and contains blisters

¹ Aiejean Ti = Spirit Lake.

of balsam. The Indians recognize them as different from the Spruce, although they have no separate name for them.

The Gray or Jack Pine *Pinus divaricata* — (Con of the Dog-ribs), Tamarack (*Larix americana* — Dog-rib name Inne doui), and Poplar I did not find north of Aiejean Ti, Willows occurred as dwarf trees sparsely all over the barrens, extending far beyond the Spruce. Canoe Birch, *Betula papyrifera* — (Dog-rib name Ki) was found north of Aiejean Ti only as a dwarf tree.

The following notes on the birds were made during the hunting trip above described. I kept no record of the Raven nor of the Canada Jay. I have also omitted most of my observations on the birds of Great Slave Lake because that country is so well known that the rough data I was able to obtain seemed to me valueless. On the other hand Aiejean Ti, Diri Ti and Conghia Ti have never been visited by any white man but myself. Jjamba Ti was visited by Prof. Russell in 1894 early in the spring before the arrival of migrants. Therefore it seemed to me that that part of the country was so little known that any information about its birds might be worth preservation.

1. **Gavia immer.** LOON. — First seen June 5 about fifty miles north of Lac de Gras. The first one seen was shot.

2. **Larus argentatus.** HERRING GULL. — Dog-rib name *Maqueau*.¹ Reached Fort Enterprise May 21. Abundant.

3. **Sterna sp.?** TERN. — Dog-rib name — *Avzi maqueau*, literally Barren Ground Gull. First seen on the Barren Grounds northwest of Conghia Ti on June 1. Eggs were found on an island in Snare Lake June 26, some of them fresh, some of them containing chicks, but all fit to eat.

4. **Oidemia perspicillata.** SURF SCOTER. — Reach Fort Enterprise May 15. In the oviduct of a female killed May 24 was a full sized ovum.

5. **Dafila acuta.** PINTAIL DUCK. — Two killed near Fort Enterprise May 26.

6. **Chen hyperboreus hyperboreus.** SNOW GOOSE. — Wavey. Seen near Fort Enterprise May 26.

7. **Anser albifrons gambeli.** AMERICAN WHITE-FRONTED GOOSE. — First seen May 23 near Fort Enterprise. First killed May 27 near Fort Enterprise. This was the common goose about Fort Enterprise both in the timber and further north on the barrens.

8. **Lobipes sp.?** PHALAROPE. — Seen in the Coppermine River not far below Lac de Gras June 9.

¹ Dog-rib words should be pronounced as if they were French.

9. **Lagopus lagopus lagopus.** WILLOW PTARMIGAN.—Dog-rib name — *Kamba*. Winters throughout the timbered country between Edmonton and Fort Enterprise. May 5. Abundant flocks reach Diri Ti in the Barren Grounds. May 7. Concealed feathers on cocks' necks brown. May 10. Cocks white with brown necks. Hens in full winter plumage. Mating commences. May 22. Females begin to change winter for summer plumage. May 30. Both males and females mottled brown and white. Almost in full summer plumage.

10. **Lagopus rupestris rupestris.** ROCK PTARMIGAN.—Dog-rib name — *Kamba*. Winters throughout the timbered country between Edmonton and Fort Enterprise. May 3. First seen on the Barren Grounds — near Diri Ti. May 5. Abundant flocks reach Diri Ti. May 7. Concealed feathers on cocks' necks black. May 10. Cocks white with velvet black necks. Hens in full winter plumage. Mating commences. May 22. Hens begin to change winter for summer plumage. Ova in oviducts three-quarters of an inch long. May 30. Both males and females mottled black and white. Almost in full summer plumage. The first color change in the cocks of both Rock and Willow Ptarmigan appears to be an example of sexual and not of protective coloration. Color changes occur in the cocks more than a week before they occur in the hens. Color changes in the cocks occur simultaneously with mating; they occur in the hens simultaneously with the disappearance of the snow. The cocks which have partly changed color are much more conspicuous than the hens which have not.

11. **Lagopus leucurus leucurus.** WHITE-TAILED PTARMIGAN.—Dog-rib name — *Kamba*. June 4. A male bird seen but not shot in the high almost mountainous Barren Grounds west of Conghia Ti. He was in full winter plumage.

12. **Colaptes auratus luteus.** FLICKER.—Seen near Fort Enterprise May 28. Common from the date when first seen.

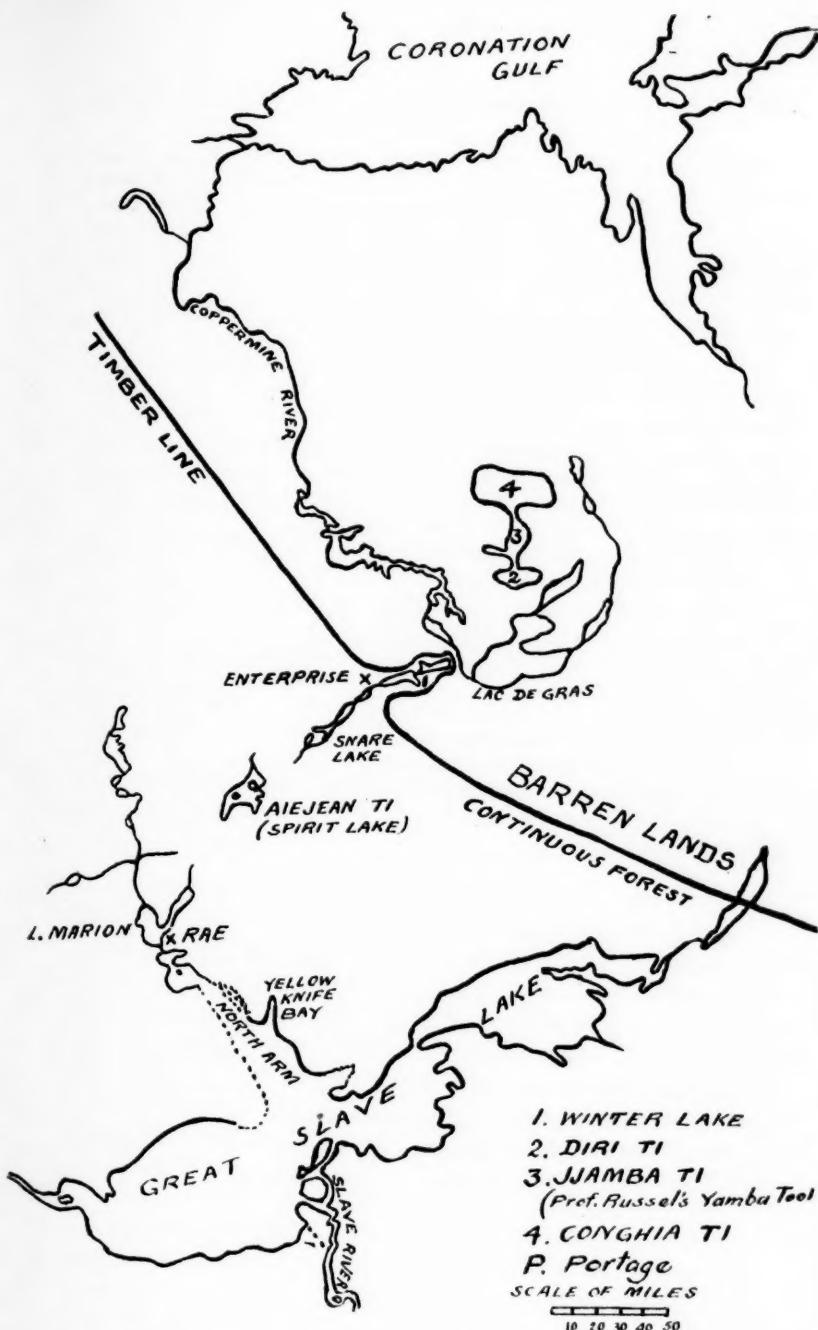
13. **Otocoris alpestris hoyti.** SHORE-LARK.—May 26. Reached Fort Enterprise. June 4. Seen on the Barren Grounds Northwest of Conghia Ti.

14. **Euphagus carolinus.** RUSTY BLACKBIRD.—Dog-rib name *Keauttesi*. May 13. Reached Fort Enterprise. Not seen on the Barrens. Song: a very sweet, metallic, silvery whistle.

15. **Loxia leucoptera.** WHITE-WINGED CROSSBILL.—April 14. Reached the country just north of Aiejean Ti. The Indians said that these birds do not winter in this country.

16. **Acanthis linaria linaria.** REDPOLL.—May 8. Reached Diri Ti in the Barrens.

17. **Plectrophenax nivalis nivalis.** SNOWFLAKE.—Dog-rib name — *Awzi tsching*. Barren Ground thing. Winter abundantly at Edmonton where they feed, like English Sparrows, on horse droppings. Jan. 30. Tracks seen about dog droppings on the long portage between Slave River and Slave Lake. These birds are rarely seen in the timbered country



MAP OF GREAT SLAVE LAKE AND REGION TO THE NORTH.

between Edmonton and Fort Enterprise, except as migrants. They probably winter in the treeless prairies from Edmonton southward. March 14. A flock seen near Smallpaper's house, North Arm of Slave Lake. March 18. First seen at Fort Rae. May 3. Tracks seen on the Barren Grounds. May 8. Birds seen on the Barren Grounds. May 19. Mating? Flocks abundant.

18. **Calcarius lapponicus lapponicus.** LAPLAND LONGSPUR. — On May 19 and afterwards seen frequently with the flocks of Snowflakes.

19. **Zonotrichia leucophrys leucophrys.** WHITE-CROWNED SPARROW. — May 26. Reached Fort Enterprise May 31. Common on the Barren Grounds one and a half days travel beyond the Coppermine River. Song: like the first two notes of a White-throated Sparrow's. If a White-throat's song is written *sow-wheat, peabody, peabody, peabody*, this bird's song would be written *sow-wheat, sow-wheat*. The Indians recognized this song as belonging to a small bird with a striped head.

20. **Spizella monticola monticola.** TREE SPARROW. — May 23, reached Fort Enterprise.

21. **Petrochelidon lunifrons.** CLIFF SWALLOW. — June 1, seen on the barrens beyond the Coppermine River.

22. **Bombycilla garrula.** BOHEMIAN WAXWING. — Dog-rib name *Krobine*. May 6. Reached Diri Ti. Seen in a grove of spruce and fir two days travel North of the Coppermine River. Between the Coppermine and Diri Ti there is absolutely no timber, when we crossed the Coppermine we carried with us even our kettle sticks.

23. **Planesticus migratorius migratorius.** ROBIN. — Dog-rib name *Goshi*. May 17. Reached Fort Enterprise. Abundant throughout the timbered country. Scarce north of the continuous woods.

The accompanying map is partly from the published maps of the Interior Department of the Dominion of Canada. Great Slave Lake north of Yellow Knife Bay and Lake Marion are so inaccurately drawn there, that I give them from my own courses and estimated distances. Aiejean Ti which is not shown on any published map, I have mapped from my own observations. Diri Ti, Jjamba Ti and Conghia Ti I have copied from a sketch map made by Germain, an old Indian who has hunted this region all his life. Winter Lake is double as I have drawn it. Canadian maps show only the western end of the lower lake.

VROEG'S CATALOGUE.

BY WITMER STONE.

IN the Smithsonian Miscellaneous Collections Vol. 47, pp. 332-347, were published a reprint of the "Adumbratiunculæ" of Vroeg's Catalogue 1764, by Mr. C. Davies Sherborn and comments on the new birds described therein, by Dr. Charles W. Richmond.

It is shown that P. S. Pallas was undoubtedly the author of the *Adumbratiunculæ* and that many of the new names proposed, antedate those now in use.

Two protests have since appeared, against the adoption of these names as advocated by Dr. Richmond.

Dr. P. L. Sclater (*Ibis*, 1905, p. 490-491) rejects the names because Vroeg's Catalogue appeared before (by a *lapsus calami* he says after) the twelfth edition of Linnæus, with which edition Dr. Sclater begins his nomenclature. He adds however "There is no proof whatever that the 'Adumbratiunculæ' were published at all; they are paged separately from the 'Sale-list.' All we know is that a printed copy of them is attached to Linnæus's copy of the Sale-list, and it was probably sent to Linnæus by Pallas. But it is impossible to say whether the 'Adumbratiunculæ' were issued along with other copies of the Sale-list or were intended by the author for Linnæus's private use only."

Dr. Sclater's position is of course unassailable if we begin our nomenclature with the twelfth edition of Linnæus, but those zoologists who follow this practice are a rapidly decreasing minority and most of us cannot dismiss Vroeg's catalogue so easily. His claim that it is impossible to say whether the *Adumbratiunculæ* were really published or were attached to other copies of the Catalogue would probably not have been made had he read the statement in the preface relative to them, which is quoted below. Furthermore since Mr. Sherborn and Dr. Richmond published their reprint and commentary, two more copies of the Catalogue have turned up, each with the *Adumbratiunculæ* attached. One as explained below is in the Zoological Society of Amsterdam, while the other was procured a few years since by Dr. Charles W. Rich-

mond from a dealer in the same city. To Dr. Richmond's liberality I am indebted for the privilege of examining his copy of this rare work.

The second protest against accepting the names in question is by Dr. E. D. Van Oort who discovered a copy of Vroeg's Catalogue in the library of the Royal Zoological Society "Natura Artis Magistra" at Amsterdam and describes it in Notes from the Leyden Museum XXXIV No. 1, pp. 66-69. Dec. 1, 1911.

Dr. Van Oort states that "all the new species of the "adumbratiunculæ" are mentioned, most of them under the same latin names, some under other latin names" in the Catalogue proper which precedes the Adumbratiunculæ and the names in the latter are thus preoccupied by those in the Catalogue.

"These latter names however, cannot be considered because the author of the names and of the descriptions is unknown."

He adds that even if this were not the case the Adumbratiunculæ were anonymous when published and the quotations of Linnæus and Pallas citing the latter as the author do not affect the case.

The latter contention I do not think will be seriously considered as the evidence of Pallas' authorship is perfectly clear. The former contention is distinctly illogical because if the names of the Catalogue are denied recognition in scientific nomenclature they certainly have no status whatever and cannot preclude the subsequent use of the same names, either in the same or another connection.

Since the American Ornithologists' Union Code of Nomenclature does not reject anonymous names, I should be willing to accept the new names which appear in the Catalogue proper and quote them from there rather than from the Adumbratiunculæ if there were no other question involved. There is however, a serious question as to whether the Catalogue is strictly binomial or was even intended to be.

The author states in the preface that the species are arranged under the Linnæan genera and are numbered to correspond with the tenth edition of the *Systema Natura*, while such species as were not contained in this work are marked with a zero. He further says "Ce qui nous a engagé à en donner des descriptions détaillées à la fin du Catalogue, qui pourront servir à ceux qui se

font un étude méthodique de l'Histoire Naturelle." This of course refers to the *Adumbratiunculæ* of Pallas.

The author of the Catalogue evidently used Pallas's names for the nondescripts just as he used Linnæan's names for species already known, but he added miscellaneous explanatory terms indicating sex, age, and condition as well as additional descriptive words, until the result seems to me anything but consistent binomialism. In fact the author probably never meant his names to be so considered, since he refers distinctly to the appended *Adumbratiunculæ* as provided for those interested in the systematic study of Natural History.

The following quotation will show how the technical names are given in the Catalogue. The genera are usually cited in the plural, and the specific names given in parentheses.

ANATES }
EENDEN } Genus LXI

238 BERG EEND. *Mannetje (Tadorna Mas)* Lin. Sp. 3
 239 ZWARTE ZEE EEND (*Nigra*) Lin. Sp. 6
 240 STORM EEND (*Fusca*) Lin. Sp. 5
 241 *Idem't Wyfje (Praecedentis Femina)*
 242 MAKKOVSER OF TURKSCHÉ EEND *Mannetje (Moschata Mas)*
 Lin. Sp. 13
 243 *Idem het KIEKEN (Pullus Moschatae)*
 * * * * *

256 KOL OF STEEN GANS (*Anser*) Lin. Sp. 7.
 257 GROENLANDSCHE BRAND GANS. *Mannetje. (Anser Bernicla*
 s. Brenta Mas) Lin. Sp. 11.
 258 TARTARYSCHE GANS *Mannetje. (Anser Tartaricus ferrugineus*
 Mas) Lin. Sp. 0.

Should anyone still consider that the names in the Catalogue should be recognized he will find seven which differ from those proposed in the *Adumbratiunculæ*, viz.

Adumbratiunculæ	Catalogue
No. 59* [=57*] <i>Certhia collaris</i>	= <i>Certhia torque rubra</i> p. 8
113 <i>Loxia tricolor</i>	= <i>Loxia erythromelana</i> p. 13
114-115 <i>Lanius carbo</i>	= <i>Lanius purpureus</i> p. 13
142 <i>Fringilla citrinella</i>	= <i>Fringilla Canariae subsimilis</i> p. 15
175 (not named)	= <i>Parus aureus</i> p. 18

358 [= 258] *Anser ferruginea* = *Anser Tartaricus ferrugineus* p. 25
 320 *Trynga alba* = *Tringa Leucophæa* p. 32

Unfortunately Dr. Richmond has adopted *Parus aureus* from the Catalogue, and the committee of the American Ornithologists' Union adopted *Tringa leucophæa*. If these names are rejected as I think they must be then *Euphonia aurea* (Pallas) p. 345 of Dr. Richmond's paper will revert to *Euphonia chlorotica* Linn. 1766; while the Sanderling will be known as *Calidris alba* Pallas as given by Dr. Richmond, p. 347.

I can see no excuse whatever for rejecting the names given in the *Adumbratiunculæ* and the changes in nomenclature suggested by Dr. Richmond should be adopted.

Moreover one more seems to be necessary. The Crested Guinea Fowl, *Guttera cristata* usually quoted from *Numida cristata* Pallas Spic. Zool. I, p. 15, 1767, is described in the *Adumbratiunculæ* 1764 as *Meleagris cristata*. This name however is invalidated by *Meleagris cristata* Linn., Syst. Nat. 1758, and I would therefore propose for *Meleagris cristata* Pallas 1764 (= *Numida cristata* Pallas 1767) the name **Guttera pallasi**.

GREAT AUK EGGS IN THE THAYER MUSEUM.

BY JOHN E. THAYER.

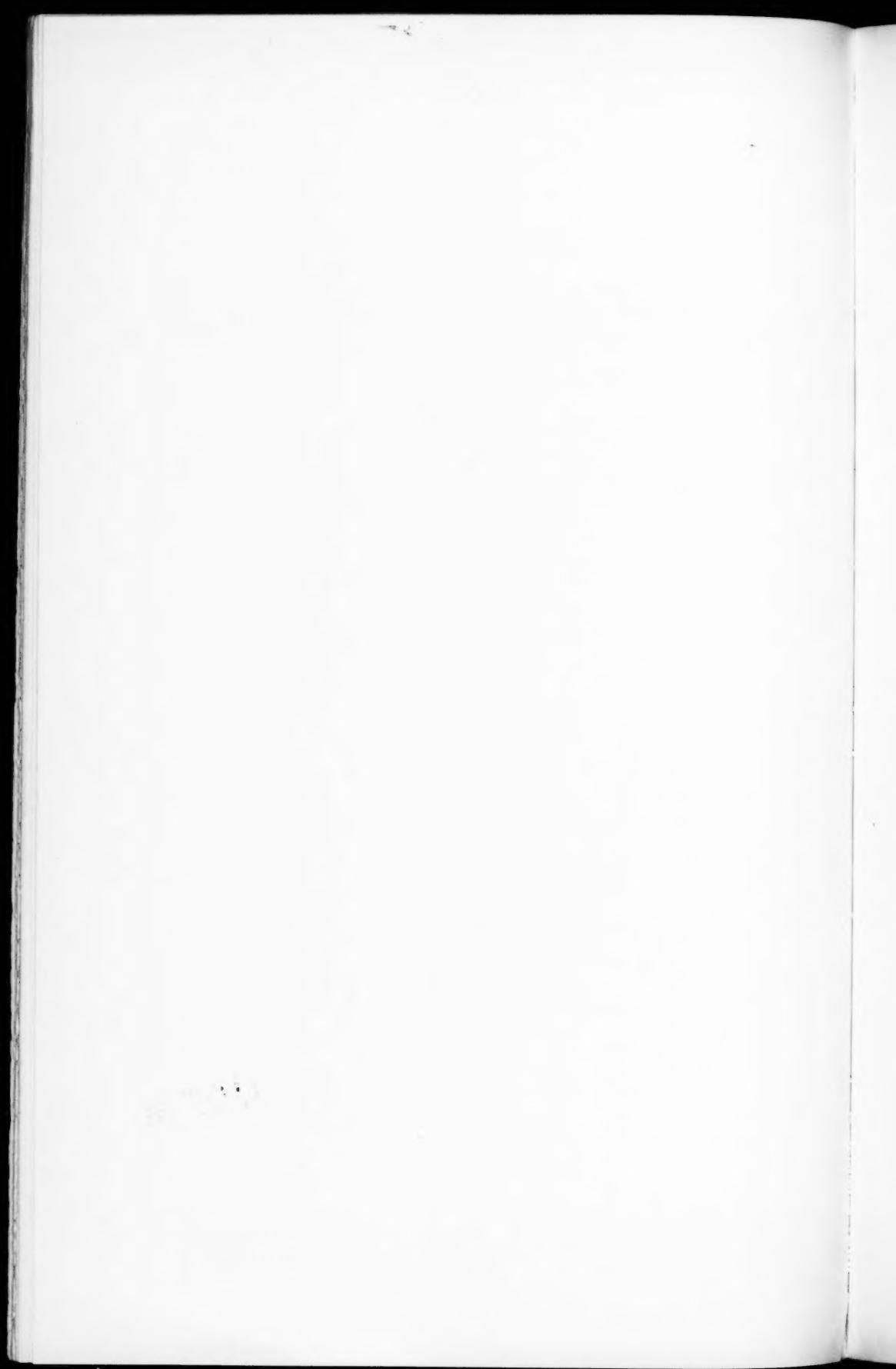
Plate XII.

THERE is at the present time a series of eight eggs of the Great Auk, *Plautus impennis*, in my collection. Three of these were described in 'The Auk' for 1905. The others are those numbered XIV to XVIII in Thomas Parkin's Catalogue of mounted skins and eggs of the Great Auk sold at public auction in Great Britain 1806-1910, from which publication the following notes are taken.

Egg XIV was found in the shop of Mons. Perrot, Naturalist *Preparateur* at the Museum of Natural History in Paris, by the late



EGG OF THE GREAT AUK IN THE THAYER MUSEUM.



Sir William Milner who purchased it November 23, 1847, for 200 francs. After his death the egg was purchased by Mr. T. G. Middlebrook, April 23, 1895, for £189.

Egg XV was originally obtained in Iceland about 1830 by a ship owner of St. Malo who bequeathed it to Comte Raoul de Baracé. Upon his death it was secured by Baron d'Hamonville in March, 1887. On June 25, 1895, it was offered at auction in London and was bought by Messrs. Jay & Co. for £173 5s and two years later July 27, 1897, was again sold to Mr. T. G. Middlebrook for £168. It was figured in the *Memoirs of the Société Zoologique de France* 1888, plate 6, fig. C.

Egg XVI from Iceland, was sold by Frederick Schultz of Dresden to Mr. Hugh Reid, May 23, 1841. The same year the latter sold it to Mr. J. H. Tuke for £2. 6s. and at the executors' sale April 20, 1896, it was purchased by Mr. Heatley Noble for Mr. Wm. Newell for £168. This egg is referred to in *Hewitson's Coloured Illustrations of British Birds* 1846, Vol. II, p. 413, and is shown in the accompanying plate. (Plate XII.)

Egg XVII one of three which were in the collection of the Vicomte de Barde for some thirty years prior to 1825 when they went with the rest of his collection to the Boulogne Museum. The curator of this institution exchanged them to Mr. James Gardner Jr. for an Ostrich skin. Mr. Gardner brought them to London and sold them to Mr. F. H. Potts, who after disposing of two of them at auction May 24, 1853, sailed to New Zealand taking the present egg with him. He died in 1888 and about 1891 the egg was purchased by Mr. Henry O. Forbes, curator of the Canterbury Museum, Christ Church, New Zealand. It was returned to England and was in the collection of Mr. Leopold Field from whom it was purchased by Mr. Rowland Ward. It was offered at auction April 13, 1897 and was bought by Mr. T. G. Middlebrook for £294. Probably no bird's egg has ever travelled so widely!

Egg XVIII has the same early history as No. XV and was figured by the Baron d'Hamonville, Plate 6, fig. B, of the paper already referred to. It was purchased, July 19, 1899, by Mr. T. G. Middlebrook for £315, but on the dispersal of the Middlebrook Museum January 30, 1908, it brought only £110, and was bought by Mr. Rowland Ward.

THE LEAST SANDPIPER DURING THE NESTING
SEASON IN THE MAGDALEN ISLANDS.

BY ROBERT THOMAS MOORE.

Plates XIII, XIV.

THE habits described in this paper were noted in the Magdalen Islands, Gulf of St. Lawrence, during the period, June 17 to July 2, 1911. Most of these days were spent in the vicinity of Grosse Isle, the fishing village at the northeast end of the "Lagoon." This peculiar body of water, twenty-five miles long by two or three wide, is bulwarked against the sea on both sides by a narrow stretch of dunes, wind-tossed mile after mile to weird and mammoth shapes of sand, but here and there blown flat into low areas. One of these just east of Grosse Isle has taken the form of a salt marsh and has become the chief nesting-locality of *Pisobia minutilla* for the eastern portion of the islands.

The marsh itself is a large one, for here the distance from gulf to lagoon is over a mile, the whole of this width, save for the dunes on the gulf-side, being covered by its surface. In the other direction it is irregular, being invaded here and there, and in places almost bisected, by tongues of solid earth, sufficient to support a growth of stunted spruces and bayberries. On our arrival no conspicuous flowers flaunted bright colors in any part of this area, for the Blue Flags had not yet bloomed on the edges and the Buck-beans (*Menyanthes trifoliata*) so profuse in a deeper marsh at East Point, were entirely absent. The whole surface was sombre, absolutely unrelieved, all in tones of gray and dark green. A more dreary waste of water and muck can hardly be imagined! Fully a third is water distributed in shallow patches, the rest water-soaked hummocks, dry only on the grassy tussocks that tuft the marsh here and there. On these hillocks the Wilson's Snipes conceal their nests, but the Least Sandpipers place theirs in tufts of short marsh grass surrounding the larger tussocks.

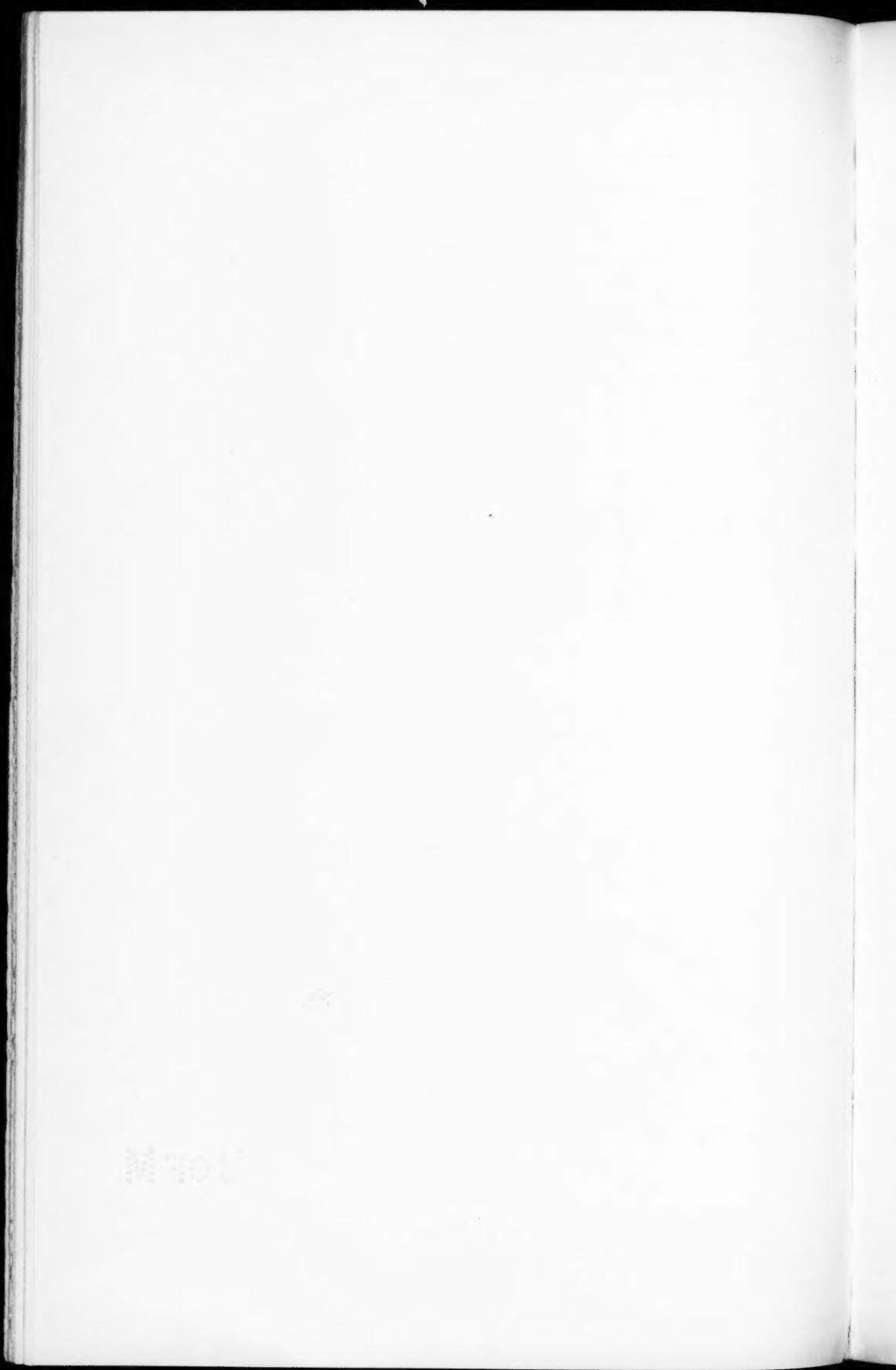
As one slops over the marsh the little Sand-peeps begin to pipe anxiously and soon one whirls up into the sky to repeat over and



1. ADULT LEAST SANDPIPER, IDENTIFYING NEST CONCEALED BY STICKS.



2. YOUNG LEAST SANDPIPER ABOUT THREE DAYS OLD.



over a pathetic little flight song. By this time the more abundant and more vociferous Wilson's Snipes are hurtling about in tumultuous excitement, those, concerned with young near at hand, making spectacular dives to earth, there to grovel and flutter, while others are cutting eccentric figures overhead and ever and anon sharply plunging down the skies to the accompaniment of their wild wing-songs. Other species, too, are demanding attention: the Savannah Sparrows buzz on all sides, Rusty Blackbirds hoarsely rasp from the marsh-edges, Blackpolls clink their pipes in the bayberry clumps, and Fox Sparrows innumerable bell from the surrounding hills. Nevertheless the Sandpiper and the Snipe seem the rightful owners of the marsh, the only ones that require just such a wet situation and no other for the setting of their homes.

All told we found five nests of the Least Sandpiper, four of them close together at the southwest end of the marsh, in an area not over a hundred yards in diameter. The fifth nest was discovered by my companion, Mr. Wm. L. Baily, in the damp end of a grassy field, where it borders the marsh along its southern margin. All of the nests were in damp situations and those in the marsh were on ground so sponge-like that one could not kneel without getting wet. Adequate protection from the dampness was afforded three of the marsh nests by a layer of dead, chocolate-colored leaves, presumably secured from the bayberry bushes. The lining of the fourth nest consisted of narrow strips of glistening white Eel-grass, *Zostera marina*, which not only bottomed the nest-concavity, but also curled its surplus of satin strands out and around the grassy tuft into a most conspicuous and charming decoration. Conspicuous as it was against the dark background, it was not absolutely tell-tale, for similar curls were scattered about the neighborhood and decreased the danger of discovery. The field nest was lined with grass which harmonized perfectly with the standing grasses that met above and made detection difficult. The customary lining seems to be leaves, and nests, so lined, though couched in short grass and open to view, are in reality well-concealed, for the chocolate-blotched eggs are almost invisible in their dark setting.

Four eggs were ultimately the complement of all the nests, though one when discovered, contained but a single egg. These were indistinguishable in shape and size, but varied considerably in

amount and arrangement of markings. One set was so heavily blotched with varying shades of dark brown that the background was hardly visible at any point, while a second set was blotched only about the larger end and spotted on the sides and small end. The general appearance of the second was buffy, while that of the first was chocolate. Still a third set differed from these in having two dark eggs like the first and two light like the second.

All four of the marsh nests were found on June 17, when three possessed the full complement of eggs. By June 22 the nest, which had on the 17th but one egg, now contained four. On this same date, the 22nd, eggs of one of the marsh nests hatched and these chicks left the home before the morning of the 24th. The 24th also witnessed the discovery of the field nest, which at that time contained four eggs somewhat incubated. These hatched between June 25th and July 1st. It appears from this that some of the females must have begun laying as early as June 5, and on the other hand, one certainly did not start much before the 16th. It must be remembered that this season, as far as the Magdalen Islands were concerned, was late and unusually wet. Unfortunately I have no dates, other than those given above, from which to calculate the length of the incubation period. All that I can definitely assert is that it lasts longer than seven days. Not until the clutch is complete does incubation begin, for all the eggs in one nest hatched within a period, not longer than twenty-four hours. There is a possibility that two broods are reared, since one female, collected on the 24th after she flushed from the set, not completed till the 22nd, exhibited a red-centered condition of four [?] of the ovaries, which made the laying of a second set potentially possible.

The young are certainly precocious, leaving the nest at least by the first day after birth and, thereafter, being able to find their food and take care of themselves. At sunset, June 22, the first egg of one clutch hatched before my eyes and forty hours later on June 24 all of the young had left the nest. The parent who had brooded them was walking about, within a few feet of the deserted home but despite diligent search, no trace of her young could be discovered. At this early stage of development their various shades of cinnamon and brown render them inconspicuous and their small size completes

an equipment sufficient for absolute safety, as long as they remain in the dark marshes. That they do not stay there long, I feel confident, for a parent and two young, not over three days old, were discovered by us on July 2 in a stretch of sand, bordering the beach and a long distance from a possible nesting-locality. Here against this white background, relieved only by spikes of grass, they were very conspicuous and the lack of protection made the parent frantically anxious. Piping a frenzied flight song, she whirled over our heads and dashed to earth, there to trail excitedly in a vain effort to confuse attention. To protect, to warn, to guide in the search for food, these seem to be the chief parental functions at this stage. That the young are able to find food and water for themselves, we had evidence the next day, for these two were kept over night and, when they were let loose, ran at once to a stream of water coursing across the beach, boldly waded in and drank deep. Quite as adept they were in finding food. Our attempts to recatch these nimble youngsters brought to light a use of wing, I would not have credited to two-day old chicks. At the moment of imminent capture they would raise their featherless flippers and flap them vigorously, as if anticipating a surer method of escape in the near future!

Interesting as this precocity was, it did not appeal to me so much as the guileless disposition of the adult birds. From a customary gunner's experience with Shore-birds I expected these abused Sand-peeps to be extremely shy in their northern homes. The truth was a revelation of gentleness of character, apparently inherent in the whole species, in astounding contrast with the bitter treatment, accorded them on our southern beaches. Never have I known any birds more docile, more absolutely free from the resentful instinct, than these wee fluffs of life. My caged canary when suddenly disturbed, pecks and scratches, but these wild Sand-peeps permitted themselves to be caught and handled without once resorting to natural weapons of defense. Indeed all their actions about the nest in the presence of human beings indicate a nature at once bold and gentle, fearless and tame, combined in a disposition about as lovable as that of any wild creature I know, and this despite the fact, that they are as consistently "collected" on the nesting-grounds, as they are shot on the migration beaches.

It is surprisingly easy to get on friendly terms with them and, once a friendly relation is established, the revelation of life-secrets follows as a natural consequence.

The birds do not flush directly from the nest like many ground-nesting species, but invariably walk or run fifteen feet or more, before flying. This habit was characteristic of all five brooding birds, particularly at the time of nest-discovery. Later it was modified by increasing familiarity, indeed two birds became so tame that they would not leave, unless threatened with foot or hand. With them flight was a premeditated action, rarely incited by fear. The customary response to the stimulus of man's presence was as follows: At a distance of fifteen feet from me the brooder would raise itself an inch from the nest and watch my approach. If my movement was extremely slow, it would drop back on the eggs, but at my third or fourth step later would rise again and walk a foot away, stop, and gaze at me doubtfully. This action was performed in erect attitude with no attempt to crouch or conceal. The next move was to run swiftly off fifteen or twenty feet and launch into flight (sometimes accompanied by song), provided it was the initial meeting. If she was used to me, she would circle about among the hummocks approaching again from various directions. At this point, if I remained motionless, she would invariably return by short running hitches and boldly gather the eggs under her. My next step would start her again and a sudden movement would produce one of two results: Either she would flutter up a few feet into the air, like a slow-flapping moth, and drop again a few feet ahead, or else she would trail and vibrate the "broken wing." All the birds used the latter trick at one time or other, but they did so sporadically, rarely employing it at the moment of leaving the nest. A marked feature of this manœuvre was the wide-spreading of the tail fan-shaped, showing a conspicuous amount of white. A supplementary action was to grovel in some mud-depression and flutter the half-shut wings rapidly for several seconds, or else to slide slowly forwards on the belly. During this performance a high call-note was constantly uttered resembling the cries of young birds. (Call record No. 1.)

So far the actions described were common to each Least Sand-

piper and would incline one to believe they lacked individuality. Quite the opposite was true; each one was highly individualized, so that it could be distinguished easily by some marked trait. For instance, one bird on leaving the nest invariably ran directly towards me, no matter from what direction I came or how close I was, and walked about my feet in imminent danger of being trod

SONG RECORDS

1. *Presto.*
2. 28va. - - - - -

2. *J = 120*
2. 28va. *trem*

3. *Presto J = 120*
2. 28va. - - - - -

4. *J = 120 28va*

4. *J = 120 28va*

pe-dee pe-dee pedee pedee pedee pe-

CALL RECORDS

1. *J = 100 28va* - - - - - 2. *J = 138 28va* - - - - - 3. *28va* 4. *J = 216 28va* - - - - -

5. *J = 216 28va* - - - - - 6. *J = 216 28va* - - - - - 7. *48va.*

P trem. *P trem.* *P trem.*

upon, if I confined my attention to the camera. Though two others were much tamer, neither showed this surprising trait. The action was not threatening, but anxious or merely nervous. A second bird developed a habit of lifting the grasses, we trod down about its nest, a third was quite shy and two others were extremely tame. Furthermore the flight songs of the three brooders I heard sing, were characteristically different and easily distinguishable.

Discovering how guileless the two tame parents were, I naturally devoted most of my time to them. One was the owner of the Eel-grass nest in the marsh, the other of the grass nest in the field. This bird hereafter designated the "marsh bird," was disclosed to us by a village boy, who was trying to catch her with his cap, a trick which he probably would have accomplished. Even while

Mr. Baily was focussing his camera within three feet of the nest, she walked up to it and covered the eggs as unconcernedly, as if we were miles away. There were three of us present, talking and conversing, yet she walked right up to our feet and slipped between the tripod legs. Indeed when a time picture of the eggs was required, one had to prevent her from walking in and spoiling the picture. That she was perfectly at home with us, was proved by the easy, unconscious attitudes she took, often preening her feathers or stretching her wings in the most serene and graceful manner. One foot held up the wing, the other balanced the bird. Poising in this airy fashion she seemed some automaton of a fairy world, rather than an earthly intelligence. (Plate XIV, fig. 4.)

And she was very intelligent! On June 20 I watched her solve three problems, one provided by the crowded condition of her nest, the others by human interference. Her custom was to run straight into her nest without stopping at the edge. Without hesitation she would step directly on the eggs, each foot on an egg, and then, try to slip the feet between them before settling. But the eggs were so large and the nest so small, that there was little room for her feet. The right foot went down quite easily, but when the left tried, it squeezed and shoved in vain. Realizing that she would not succeed in this way, she made use of her bill, inserting it between the offending eggs and turning the small end of one around. Then she shoved the lining away to the side of the nest near the small end and having made a hole, inserted the foot. Her next move was to coerce a refractory egg under her feathers and then to tear out a piece of Eel-grass that annoyed her. At length content she sank into a wide-spread fluffy condition, the bill sunk, the eyes relaxed, and assumed that glazed appearance, which denotes a brooding bird unconscious of surroundings. (Plate XIV, fig. 3.) And all this happened while my head was within three feet of hers!

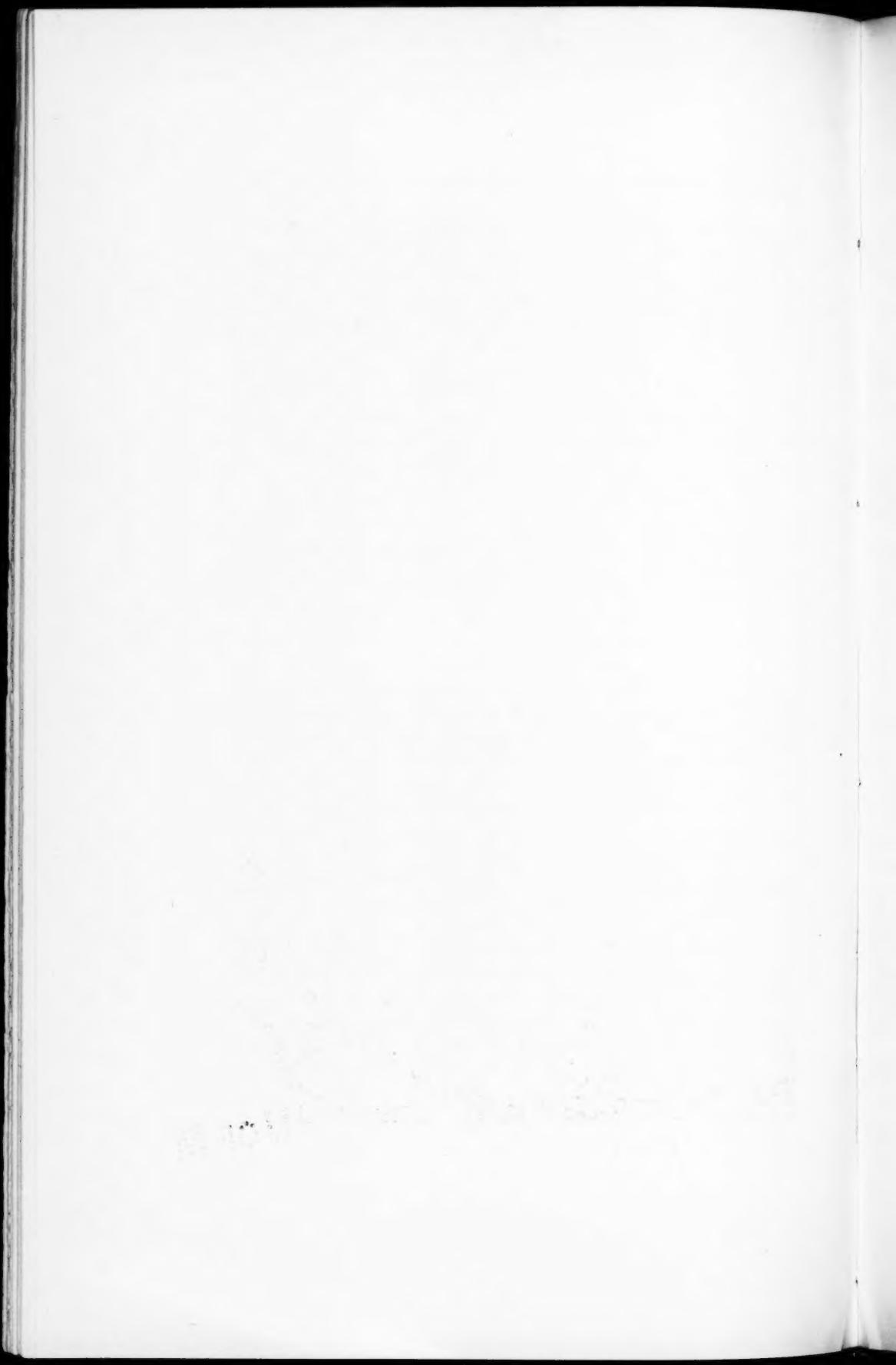
It seemed a pity to disturb her, but I had my own problem for her. Forcing her off, I filled her nest full of sticks and waited. Immediately she came up and ran right over the top of the nest. Stopping on the opposite side, she stood stock still a full minute unable to grasp the changed conditions. Then, for the first time



3. ADULT LEAST SANDPIPER, INCUBATING. UNCONSCIOUS ATTITUDE.



4. ADULT LEAST SANDPIPER, STRETCHING WING.



this bird evinced active concern, for she began to run in and out of the tussocks, searching frantically in all directions, now and then halting to get bearings and constantly giving vent to that pathetic little call. (Call records No. 2 and 3.) Fearing she might abandon the home, I thought to relieve her, when at that moment she ran up to the sticks again, glanced at a tuft of grass four inches to the right, which seemed to be a landmark, gazed at the sticks searchingly, and at length recognized the nest. Instead of trying to lift the sticks out, she attempted to shove under them, but found them too bulky to move. So she pried them up with her bill, gradually working into the nest as she pried. (Plate XIII, fig. 1.)

Again I flushed her and determined to make as hard a problem as possible. First, I stamped down the tufted hillock which threw shadows from the setting sun and next, covered the nest completely with a mass of yellow straw. Again she overran the nest and this time seemed completely bewildered. Astonished by the disappearance of the landmark, she ran swiftly away, as if bewitched, and crouched flat in a mud-hole, her whole attitude being one of fright. But it was not long before she adjusted her ideas to the new conditions, ran up to the straw, inserted the bill underneath, and crept under. Her body struggled under the burden and disappeared; the straw shook convulsively, evidence that the home was being put to rights. For an instant it seemed she would walk off with the new roof, but finally the struggles subsided and a head popped out with a frightened look as much as to say: "What new plots are you concocting now?"

In order to secure photographs I had to disturb her a number of times and the last time, she retired five feet to the east and without warning shot up into the sky. As she flew, she sang the flight song. (Song record No. 1.) I hoped she would return, but no, she kept on ascending and singing as she climbed, repeating the song over and over with but slight pause. A certain wildness about it betokened final farewell and it certainly was final for that afternoon. Two days later contrary to my fears, I found her again on her nest, a returned songster.

This day the 22nd, I determined to catch her in order to ascertain positively that there was no webbing between the toes. Kneeling

on the ground, I gradually moved my hand through the short grass. Each time she rose from the eggs, the hand halted and waited for her to drop again. Sometimes I feinted with the other hand to draw her attention. As the hand got nearer, her breathing became heavier and the breast feathers palpitated visibly. At length my first finger touched her neck and she raised slightly only to sink again, when it stroked her. A minute later her neck was almost surrounded and she resented the uncomfortable feeling only by hunching upwards. Then, just as the fingers were about to close, she slipped out from under and was free. Keeping my hand circled about the nest I waited. Almost instantly she returned and crept under my hand. I closed the fingers and lifted her for examination. She endured it patiently and, when I let her go, flew but a short distance, straightened out the ruffled feathers, and in three minutes was back on the nest!

In the midst of this operation one egg hatched before my eyes. It broke open violently, as if by explosion, the two sections shooting to opposite sides of the nest and the new youngster burst valiantly into the world. Immediately the wet wings began to strike out vigorously and tossed the smaller section of the shell out of the nest. The mother was manifestly perturbed about her new baby, plainly concerned at my presence on such an important occasion. She rushed up to the nest, hesitated uneasily, constantly uttering solicitous call-notes (Call record Nos. 4, 5 and 6), and finally brooded. Entering she stepped right on the head and neck of the precious new-born, just as she had trod on the eggs previously. Perhaps she would not have been guilty of this flagrant misconduct, if my presence had not embarrassed her. At this moment I left her and, when I returned, found her walking about some feet from the nest. Both sections of shell had disappeared and could not be found, though I searched long. Two days later the nest was empty, the young undiscoverable, but the wee parent was still walking about as tame as ever. Again I almost caught her, getting my hand within six inches of her. Whenever I started the imperceptible stalking motion, she always acted as if mesmerized and the recovery from the state of seeming paralysis was announced by tremulous call-notes.

The field bird, whose nest was discovered by Mr. Baily June 25

in a damp grassy field, was almost as tame as the marsh bird. This being the first day of sunlight we had enjoyed with these birds, I determined to catch her too and secure a good photograph. With the camera set up five feet from the nest, a ten foot hose attached, and the bulb in my left hand, I proceeded to work my right hand toward the bird. From the start she proved to be more nervous than the marsh bird and, when my hand got close, fluttered off precipitately. Then, I curved the hand about the nest hoping she would creep under it as the marsh bird had done, but she began to pull at the grasses, we had tramped down in the vicinity. At first this action had been merely protective, for she began it sitting on the nest, lifting the blades and making them assume their former upright position of concealment. Now on the contrary the act was a nervous one, for she straightened grasses some distance away and always did it, when I circled the nest with my hand. Each time I moved away she would return and incubate. It was evident that there was more chance of catching her by moving the hand towards her than by waiting for her to return. Proceeding in this fashion after an hour's effort I accomplished the trick. She struggled violently, but did not attempt to pick my hand.

Like the other Least Sandpipers she possessed a flight song and gave snatches of it from the ground. Once she rendered it entire, within a foot of my hand! It consisted of a series of trills, which ascended just one octave on a minor chord. (Song record No. 2.) The tone quality was pure and sweet and rendered pathetic by the minor chord, which served as its medium. This, however, is distinctly a flight song and, I believe, delivered from the ground only under spur of excitement. Slipping out of my hand a moment later she uttered it with a wild frenzy, as she whirled excitedly aloft. Out over the Lagoon she went, farther and farther, higher and higher, till her wee form vanished from sight, but for several minutes afterwards that pathetic ascension of sound reached my ears, constantly leaping upwards, only to return to its starting point and leap again. Three minutes later I heard it once more approaching and shortly after, she pitched down near the nest and in a few seconds was once more brooding, as if no untoward incident had happened!

Records of the flight songs of three of these brooding birds I possess and each in its notes, progressions, and even time is totally different from the others, and yet, without sight of the bird, I would instantly recognize them as songs of the Least Sandpiper. This is due to the fact that the quality of tone is constant in all being pure and sweet, the tempo is always extremely fast, the notes being delivered with great rapidity, and the pitch high. Trills and runs are characteristic and make an additional recognition-quality. All of this is shown by the records which follow:

No. 1 is the song of the marsh bird I caught, No. 2, the song of the field bird, and No. 3 belongs to a bird I was compelled to shoot, as described later. All three were rendered by incubating birds. Songs No. 1 and 2 were heard on three or four occasions each, and No. 2 was noted over and over again, both from the earth and the sky, and I have no evidence to suggest that this bird or the other two sang other songs than their own particular ones, or that they varied them to any noticeable degree. After the young were out of the nest the field bird did alternate with song No. 2, a long repetition of two call-notes (Song record No. 4) as noticed later, and changed from call-notes to song and from song to call-notes without a second's break, and yet these call-notes were so distinctly such, that they need not be considered in a discussion of the songs.

Two marked qualities the songs possess and they are exhibited, in one case more and in the other less, by the call-notes, that is they are tremulous and they are pathetic. The former is most prominent in the calls, but is at times present in the songs. On several occasions they were rendered within a few feet of my ears and at this close range trembled or quivered markedly. This tremulous quality is precisely the best medium to convey anxiety and it was most strongly present, when the brooding birds give evidence in other ways of possessing that emotion; for instance, when the marsh bird could not find her covered nest and when she found my hand encircling her nest at the instant her first chick was born. This quality was also conspicuous at the initial discovery of each nest. In the flight songs, when delivered at a distance, the tremulous effect could not be so easily distinguished, but when they were given on the ground at moments of anxiety, they were strongly charged with it.

The second quality, that of pathos, was perhaps the chief characteristic of the songs and to a lesser extent of the calls. An examination of the musical structure reveals the reason for this. All three songs are definitely related to the minor key. Song No. 2 is distinctly in the key of A minor, song No. 1 in the key of F minor, and No. 3, though beginning in E^b major, drops its "third" a half tone at the end, as if inclining toward the minor effect. So too, even the call records, No. 4 and 5, are distinctly minor, consisting of two notes, B and G[#], which limit the intervals of a minor "third." It is a matter of popular knowledge that sad or pathetic songs are generally written in minor keys and so it is not surprising to find these pathetic bird songs rendered in just the best way to produce such an effect.

The finest bit of singing I heard occurred at the close of the nesting season. Returning from Bird Rock, July 1st, we passed by the nest of the field bird, which had sung song-record No. 2. As we walked along this flight song piped overhead and was sung over and over again with a tremulous zest. Alternating with it, was repeated for long intervals an excited call of two notes. We glanced up and for the first time beheld two adult Least Sandpipers together! Alternately they flapped and soared and circled about in a rapturous fashion. For several minutes the alternation of song and call continued without break of any kind. Sometimes the song was given three times consecutively and followed by as many as thirty or forty repetitions of the call, this in turn to be followed by the song again. The second note of the call was strongly accented, as indicated by the mere musical outline above (Song record No. 4). This call of two notes precisely corresponds to Nuttall's description of the "collecting cry of the old birds calling together the brood," which he rendered into the syllables, "pé-dèe, pé-dèe, pé-dèe, etc." The accent gives it an emphasis of joy not to be misunderstood and the whole performance is decidedly ecstatic. Turning to the nest I found it, as I suspected, empty and I was willing to believe that the unusual ecstasy was not unrelated to the passing of the great red-letter incident in the rearing of young, the leaving of the nest.

Focussing my glasses on the rapturous pair, I confirmed another supposition of mine, that only one bird was doing the singing.

And this brings me to the statement of a conclusion, the proofs for which I wish were more adequate, and yet they are adequate enough, I think, to warrant the publishing of what, if true, is a most unusual trait in the life-history of this species. On the 22nd of June I suddenly realized that in all my prolonged visits with these birds, lasting for several hours at a time, I had not once observed mates of any of the five brooding birds. It seemed exceedingly strange when the birds were so repeatedly disturbed, that the mates should not be called in to protest, particularly as both sexes of the other shore birds nesting in the vicinity, the Spotted Sandpipers, the Ring-necked, and the Piping Plovers were always about their nests. From this day on I made particular search for these mates, but without success. Neither about the nest, nor in the great marsh, nor even on the nearby beaches did I once discover a single Least Sandpiper, other than the five, which, despite frequent visits, kept on or close to their respective nests. By the 24th I had come to the natural conclusion that the absent mates were males, although this involved the belief that the singing was being done by the females. For some days it had been plain beyond question of doubt that the brooding birds of at least three of the nests were always the same ones to be found each time on their respective nests, for each of these was too strongly individualized by various traits to be mistaken for other individuals. It was also absolutely certain that these incubating birds were doing all the singing we heard. On this day, the 24th, I shot the bird, which sang song record No. 3, immediately after I noted her flush from the nest, sing, and return to brood. That evening Mr. Baily dissected her under my observation and found her to be a female! On the following day I made a more determined search than ever for the "males," as we now denoted them, and under this date I find for the *third* time in my journal the same note: "Have not been able to locate sitting birds' mates anywhere, not even on the beaches"! Not until July 1, when all the young were out of the nest, did we observe a single mate and that was on the occasion noted above, nor after this did we again note two adult Least Sandpipers together!

From these facts and observations it seems to be a safe assumption that all of the incubating birds were females, that the females

did the singing, and that the males spent the day hours some distance from the marsh-homes and, if they incubated at all, did so at night. Two facts remain positive: that the incubating birds did the singing and that one female both incubated and sang!

I cannot close this paper without adding a just tribute to the song of these wee sprites. Of course, it cannot compare in power, melody, and rich depth of tone with the song of the Fox Sparrow, the prima donna of the Magdalens, nor can it claim attention beside the productions of the Hermit Thrush and the Song Sparrow, which however are rare, at least in the eastern part of the islands. But after these three major songsters are disposed of, it will be found to rank high up, if not at the head of those that are left, the Rusty Blackbird, Savannah Sparrow, the Kinglets and nearly the whole group of Warblers. Only two of the minor musicians present in the Magdalens, the Water Thrush and the Horned Lark, can equal the effusion of the wee Sandpiper. This is a remarkable fact, when one remembers that none of the other shore birds, at least those summering in the Magdalens,— the Ring-necked and the Piping Plovers, the Spotted Sandpiper, and the Wilson's Snipe — utter anything that even by courtesy may be termed a song! The Sand-peep, alone of his tribe, dares to contest with the real songsters and does so creditably. Indeed, after that one glorious song of the Magdalens, the Fox Sparrow's, is excluded, I will always remember longest and hold dearest this sweet rippling sky song, that somehow, perhaps on account of the aerial quarter from which it comes, perhaps on account of the sweet character of its author, touches some chord within me nearer to affection than many of the bird-songs, held up for unquestioning admiration, are able to reach.

FURTHER NOTES ON THE FRUIT-EATING HABITS OF
THE SAGE THRASHER IN THE YAKIMA
VALLEY, WASHINGTON.

BY CLARENCE HAMILTON KENNEDY.

IN 'The Auk' for April, 1911, I reported the extensive damage done by Sage Thrashers (*Oreoscoptes montanus*) in the vineyard on this ranch. My observations and efforts to lessen the damage done were continued through the past season and are of interest.

While occasional Thrashers were seen on the ranch during the spring and early summer months, they did not appear this season in numbers until the middle of August when the Campbell's early grapes were ripening. For some reason they did not come early enough this season to eat the blackberries and raspberries. However, when they did come in August they were as numerous as at any time during the previous year.

Anticipating the damage they might do, I combated them in two ways.

First, the summer pruning to remove the extra foliage was omitted on those varieties, which had suffered the most damage the year previous, for I had noticed, that more damage had been done on the exposed bunches, than on those which were hidden by the foliage. While the Thrashers attempted to do as much damage as in the previous season, this extra foliage effectually protected nearly all of the bunches, and concentrated the damage on the few that were exposed. It was cheaper to sacrifice these altogether to the Thrashers, than to trim a few damaged berries from each of many clusters. The serious fault of this measure was that it delayed the ripening about ten days, which reduced the value of the crop. This method saved the Campbell's Early, which is the first variety to ripen, but it failed to save the Tokays and other *Vitis vinifera* varieties, which began ripening three weeks after the Campbell's Early.

To save these I began the second method, namely killing the Sage Thrashers with a shotgun. The year previous I had tried shooting a few to see if they could be frightened away but failed to intimidate them. They are apparently not quick or intelligent birds.

This year I shot to exterminate those in the vineyard and I must say that I was surprised at the quick results. The following table shows the rapidity with which they were destroyed.

Sept. 7, 1911 — 14 killed	Sept. 11 — 1 killed
Sept. 8 — 4 killed	Sept. 12 — 1 killed
Sept. 9 — 2 killed	Sept. 13 — 2 killed
Sept. 10 — 1 killed	Sept. 14 — 1 killed

After Sept. 14 no more were seen. During the first day's shooting they were easily approached but after that the few remaining birds were very wary. These on being disturbed would fly up on posts and then, seeing the gunner approach would dive into the grape foliage and escape by running on the ground, or by short flights from vine to vine close to the ground. The small number killed and the speedy and complete disappearance of the species seemed to indicate that they are very local in their individual ranges, and that these were living altogether in the vineyard during their depredations.

While the Thrashers are silent birds at this season, I did hear two short songs and one whispered song, also a cluck was given sometimes, when they were startled.

The following table gives the contents of stomachs examined: —

<i>Fruit in stomach</i>	<i>Insects in stomach.</i>
1 None	None.
2 Green grape, red grape.	Locust, several ants.
3 Black grape.	Small ground beetle, 3 white gravel.
4 2 black grapes.	Locust, numerous ant remains.
5 Black grape.	
6 2 black grapes	
7 Green grape, red grape	Locust, 6 ants.
8 Black grape	Locust, small wasp, small beetle.
9 Black grape.	Three black ants, minute beetle.
10 Black grape	Beetle, wasp.
11 Black grape	4 ground beetles.
12	Large ground beetle.

The omission of summer pruning is not a satisfactory method of saving the Campbell's Early grapes as the later ripening involves a loss of about 30% in value, as during this ten days delay the grapes drop in market price from three cents a pound to two cents. Therefore, if the Thrashers have to be killed before the

season is over, because of their molesting the later varieties it would seem quite as justifiable to shoot them early enough to save the Campbell's Early grapes also. It seems a pity to be compelled to kill such wonderful singers as Sage Thrashers, birds, which, were it not for their grape eating habits, would undoubtedly be very beneficial, but no better method occurs to me and it is difficult to stand by and not try to save the grapes.

In the few isolated vineyards in this lower Yakima Valley the killing of the Thrashers, which infest them during the grape season would evidently save the grapes and, because the Thrashers do not fly about the valley in flocks, only the few which live in each vineyard would have to be destroyed. This would save the grapes, and would probably not appreciably effect the total number of Thrashers inhabiting the valley.

CERTAIN PHASES OF THE THEORY OF RECOGNITION MARKS.

BY W. L. MC ATEE.

THE paper by Dr. John Treadwell Nichols on recognition marks in certain species of birds, published in the preceding number of 'The Auk'¹ was read at the Philadelphia meeting of the American Ornithologists' Union in November, 1911. The theory of recognition marks was then unfavorably commented upon by several speakers, of which the writer was one. He now wishes to put in print a series of questions, which must be satisfactorily answered by those who believe in the great importance of directive markings if they would persuade others to share this belief. A statement of the general theory² of recognition marks will be useful and to

¹ Vol. XXIX, No. 1, Jan., 1912, pp. 44-48.

² It should be noted that this theory covers both "banner marks and "sight clues." H. C. Tracy in 1910 (Univ. of Calif. Publ. in Zoology. Vol. 6. No. 13, Dec. 28, 1910) separated these classes of markings, discrediting the crude interpretation of the former, but claiming utility for the latter.

avoid, misinterpretation we quote a mature expression of the theory by its originator and chief developer, Dr. A. R. Wallace.¹

"If we consider the habits and life-histories of those animals which are more or less gregarious, comprising a large proportion of the herbivora, some carnivora, and a considerable number of all orders of birds, we shall see that a means of ready recognition of its own kind, at distance or during rapid motion, in the dark or twilight or in partial cover, must be of the greatest advantage and often lead to the preservation of life. . . . Some means of easy recognition must be of vital importance to the young and inexperienced of each flock, and it also enables the sexes to recognize their kind and thus avoid the evils of infertile crosses; and I am inclined to believe that its necessity has had a more widespread influence in determining the diversities of animal coloration than any other cause whatever." (p. 217.)

A weighty objection to this hypothesis, as it is indeed to most hypotheses coming under the theory of natural selection, is that the need of a certain color, or form, or other detail of animal anatomy either internal or external, can in no wise be advanced as a cause of the development of something to satisfy this need. In the words of D. O'Phace, Esq.—

"Some flossifers think that a fakkilt's granted
The minute it's proved to be thoroughly wanted."

This point need not be labored, for it is evident that all species have needs that have not been satisfied. On the other hand most species have developed characters that are in no way useful; indeed this is sometimes carried to such a degree that the character becomes a handicap. These things are not called forth by necessity; what reason is there to believe therefore that the particular characters known as "recognition marks" have risen in response to a definite need?

Continuing the quotation from Wallace:

"Among birds, these recognition marks are especially numerous and suggestive. Species which inhabit open districts are usually protectively coloured; but they generally possess some distinctive markings for the purpose of being easily recognized by their kind,

¹ Darwinism, 1896.

both when at rest and during flight. Such are, the white bands or patches on the breast or belly of many birds, but more especially the head and neck markings in the form of white or black caps, collars, eye-marks or frontal patches.....

"Recognition marks during flight are very important for all birds which congregate in flocks or which migrate together; and it is essential that, while being as conspicuous as possible, the marks shall not interfere with the general protective tints of the species when at rest. Hence they usually consist of well-contrasted markings on the wings or tail, which are concealed during repose but become fully visible when the bird takes flight.....

"Most characteristic of all, however, are the varied markings of the outer tail-feathers, whose purpose is so well shown by their being almost always covered during repose by the two middle feathers, which are themselves quite unmarked and protectively tinted like the rest of the upper surface of the body." (p. 222.)

Proceeding with the questions previously referred to:

Why, if recognition marks are so important as a means of keeping members of a flock together, do so many species of birds possessing this type of coloration, migrate by night as well as by day, or even migrate chiefly by night?

Wallace, asserts that these marks "are very important for all birds which congregate in flocks or which migrate together." Yet practically all of the smaller migrants do most of their traveling at night, when recognition marks can be of little or no service. Even the bulk of the larger species, as Ducks, Geese and other waterfowl, which do much traveling by day, have no difficulty in making extensive migrations at night and in some localities they habitually choose night-time for their lesser journeys.

It is worthy of note that the principal exceptions to the rule of night migration among the smaller birds, viz: Swifts, Nighthawks, and Swallows, have one characteristic — the habit of feeding while in full flight — in common. There is little doubt moreover that this habit is the direct cause of their diurnal migration; that is to say, recognition marks probably have nothing to do with it.

If recognition marks are so valuable as a means of keeping members of a species together, why is it that in the case of certain species, every member of which has the same directive coloring, the young birds and the adults migrate in separate flocks?

It is evident that in such cases (frequent among Shore-birds) that some condition is more important than the possession of the regulation directive marks of the species.

If recognition marks are so important to flocking species, why is it that their usefulness is swamped, as it were, in many cases, by the flocking together of distinct species?

For instance during the only time that Shore-birds, Ducks, Geese, Swallows, Sparrows and Warblers flock, distinct species show no aversion to flocking together; in fact they habitually do this very thing.

Why do directly colored species ignore the hall mark of their kind, and crossmate?

This is done promiscuously and freely by Anatinæ; other examples are *Vermivora* and probably *Colaptes*.

We may well inquire also why certain very closely related species do not have recognition marks? For instance, *Sturnella magna* and *Sturnella neglecta*; and certain species of *Empidonax* and *Vireo*.

Species in which all of the individuals are not colored alike, or do not have certain conspicuous markings in common, cannot be said to have specific recognition marks. This category includes those species the young of which are very different in color from the adults, a condition that persists for two or three years or more in certain cases. With them must be grouped also, the dichromatic Screech Owl, the four species of Buteonidæ, and the three Jaegers that have a normal melanistic phase, and the numerous species which exhibit completely or nearly completely distinct sexual coloration, either at certain seasons or permanently. We may well enquire therefore how such species as these have made a success of the struggle for existence without the aid of the highly esteemed recognition marks?

If recognition marks are of vital importance why are they so variable?

They vary extremely in the Mniotiltidae, as the writer knows from a special study of the subject. White blotches may be present on anywhere from two to five pairs of rectrices in the same species. The white wing spot so characteristic of *Dendroica cærulescens* varies greatly, and is sometimes absent. Both the primary blotch and tail spots may be lacking in the same specimen.

If liable to considerable individual variation, what dependence can be placed in recognition marks as a means of identifying their fellows, by closely similar species, by *Penthestes atricapillus* and *P. carolinensis* for instance, or *Dendroica auduboni* and *D. coronata*, by the Flickers or Dusky Ducks? One of Wallace's illustrations of recognition marks — those of two species of *Scolopax* (*Darwinism*, fig. 22, p. 225) — certainly does not show more difference than do numerous commonly observed individual variations. One of the fallacies into which coloration theories lead is brought out by a comparison of this figure with that on p. 241 (fig. 23) illustrating a case of mimicry. In the latter cut the objects which are supposed to be so similar that one, the mimic, gains protection by the inability of birds to tell the forms apart, are actually much more different than the two sets of directive markings (shown in the former illustration), which are supposed to be so distinct as to enable the species easily to recognize their kind.

The variability of recognition marks brings up another question: what must be their extent in order that they may have directive value? Take for example the white tips on the tail feathers of the robin, which are extremely variable and often absent. In certain warblers we can get a series showing all stages from no tail spots to large blotches on at least two pairs of feathers. Where can the line be drawn?

Recognition marks are claimed to exist in other groups than birds, even in insects, but in certain cases, becoming more numerous in the lower groups, they are termed warning colors. Where is the line drawn that separates these categories, and why?

Is there any evidence that birds use in a directive sense the patches of colors, termed recognition marks?

A valid objection to the theory has been made to the effect that the usefulness or at least the necessity for these marks depends upon the assumption that the animals possessing them are less acute observers than human beings. Humans can readily recognize species by glimpses of outline when no color is seen, or by peculiarities of motion, in the case of flight at least, at such distances that the observation of color is entirely out of the question. There is much good evidence furthermore that the assumption mentioned is unfounded. Anyone who has handled live decoy

ducks and geese, is familiar with the practice of leaving the mates of some of the birds behind to make them call better during the day. He cannot have failed to observe also when coming back to camp in the evening at what a distance these paired birds become aware of each other's presence and give vociferous greetings. Ducks in no matter how large a flock readily pick out their mates. Can creatures possessed of such powers have any vital need for the comparatively coarse distinctions, not of individuals but of their species as a whole, which are termed recognition marks?

The evidence is very confusing from the fact that the powers of observation of these same birds, so keen in the case just described, apparently become so dull in the presence of decoys, that the extermination of species would result, were shooting not closely regulated. Neither the one occurrence nor the other however is evidence of the usefulness of recognition marks. Hence we may well inquire:

Why, if directive markings are so important in guiding birds to flocks of their kind do so many birds among those reputed to have well developed recognition marks, come freely to the crudest forms of decoys?

The writer was initiated into the mysteries of Shore-bird shooting by Mr. J. B. White, a life long hunter on Currituck Sound, N. C. The decoys we used were merely rounded handfuls of water plants (*Potamogeton*, *Naia*s and the like) placed on pegs which held them just above the water. Shore-birds of many species decoyed perfectly to these lumps and if not fired at, would linger among them for some time, feeding in a perfectly normal manner.

Wild ducks are tricked too by very primitive decoys. Old battered ones, with no particular colors, or colors that were never seen on fowls of sea or land, with broken bills, or missing heads are familiar sights on many shooting grounds yet they serve the purpose. Iron ducks with no paint, and wooden ducks, of thrice normal size, which have been sculptured with an ax, are used with great effect by the battery shooters of Currituck. The confiding manner in which Ducks will cluster about a lost decoy, or lie among a setting of decoys that is left out but not very frequently shot over, to say the least, shows a disposition on the part of ducks not to insist very strongly on the possession of certain spots or bands of

color in their temporary associates. In some places decoys representing only the rear parts of ducks are used, and these ever-dipping counterfeits which never show a head, nevertheless fill the bill; in other localities the bottom in shallow water is simply turned up in spadefuls, making dark lumps and ducks decoy to these. Mr. White tells me that the best day's shooting at black ducks he ever enjoyed was begun with his shoes as decoys, dead ducks being substituted as they were killed. These things prove that on some occasions at least some of the most typically flocking birds do not pay any attention whatsoever to markings directive or otherwise.

AN APPARENTLY UNRECOGNIZED RACE OF THE RED-SHOULDERED HAWK.

BY LOUIS B. BISHOP, M. D.

***Buteo lineatus texanus* subsp. nov.**

TEXAS RED-SHOULDERED HAWK.

TYPE.—♀ adult, No. 22355, Coll. of Louis B. Bishop; Corpus Christi, Texas, Nov. 7, 1909; John M. Priour.

SUBSPECIFIC CHARACTERS.—Similar to *Buteo lineatus elegans*, but breast usually more spotted with buffy, the dark shaft lines of chest more conspicuous and the head and back more rufous.

MEASUREMENT OF TYPE.—Wing, 12.98; tail, 8.62; culmen, .90; tarsus, 3.23 inches.

Sixteen adult Red-shouldered Hawks, collected for me at Corpus Christi and Brownsville, Texas, in October and November, 1909, by Mr. Frank B. Armstrong and John M. Priour, closely resemble each other and differ as described above from the only adult *B. l. elegans* I have been able to examine. They are also much larger than this bird — an adult spring male from California — but not above the measurements given for this race.

These Texas birds are much more richly colored below than fall

specimens of *B. l. lineatus* from Connecticut, having the chest and breast uniform bright cinnamon rufous and the abdomen, tibiæ and lower tail-coverts bright buff heavily barred with cinnamon rufous. They are larger than *B. l. alleni* from Florida and have the head and neck not grayish but even more rufous than *lineatus*.

Six young birds collected at the same time differ from the description of young *B. l. elegans* by having the pale spaces on the outer webs of the primaries as large as in *B. l. lineatus*. From the latter they differ by having the lower parts, especially the tibiæ, more buffy and the dark markings larger — sagittate or cuneiform instead of oval — and numerous even on the tibiæ, which are slightly if at all spotted in *B. l. lineatus*. Young *B. l. alleni* is smaller and has less buff in the plumage, and the dark markings below are even heavier than in the Texas race.

GENERAL NOTES.

Holbæll's Grebe in Connecticut.—An unusual flight of *Colymbus holbælli* was noticed here during the month of February, 1912. A specimen was picked up alive in a mowing lot, perhaps two miles from the Connecticut river, on the 9th, the ground at the time being covered with snow and the thermometer near the zero point. The bird could not, apparently, arise from the ground. From the 12th to the 15th, inclusive, nine of these grebes were captured alive on the ice in the Connecticut river. Some of them in trying to escape simply moved along the ice in a rapid manner using their feet for power, but making no attempt to fly. Two of them, however, arose from the ice and flew at a height of from eight inches to two feet for a short distance and then dropped down. Between the dates referred to the river was entirely covered with ice, there being, so far as could be seen, no open water where the birds could obtain food.—*JNO. H. SAGE, Portland, Conn.*

The Forked-tailed Gull (*Xema furcatum*).—Recently in looking over some notes taken at sea a number of years ago (1885) and which had been forgotten I came across the following in relation to the Forked-tailed Gull.

In making a passage from Callao, Peru, to Acapulco, Mexico, we passed in sight of Chatham, one of the Galapagos Islands. When three to four hundred miles distant from the island — both when approaching and when

leaving it — I observed gulls with a forked tail. Their line of flight was always in the direction of the islands — in the evening going to and in the morning going away from them. Morning and evening for three days I saw them.

I sat on deck with gun in hand for parts of the three days trying to procure a specimen of these birds. Twice they came near enough to tempt me to risk a shot; but in both instances the distance was too great for success. One of the birds shot at dropped its feet and shook its feathers as if it were hit.

They were so well marked that I do not think I could have been mistaken in my identification — a forked-tail, a black head, the entire under part of the body white, the back of a darker color I could not determine the shade, and with streaks of black and white on the wings.

I desire to direct attention to another peculiarity in which these gulls differed from the square-tailed gulls. They are not littoral in their habits, but go to sea seeking their food like the gannets. In an experience of fifteen years at sea I have rarely seen the square-tailed gulls far from land. Besides the forked-tailed were quite shy, as is shown in my efforts to procure a specimen. It is the habit of the others to hover about vessels quite near.— THOMAS H. STREETS, *Medical Director, U. S. Navy, Retired, Philadelphia, Pa.*

Cory's Shearwater in abundance off Long Island.— On October 2, 1911, I shot two Shearwaters off the coast of East Hampton, Long Island. I took them to be Cory's Shearwater (*Puffinus borealis*) but to make sure I brought them to Mr. W. DeW. Miller, Assistant Curator of Ornithology at the American Museum of Natural History who confirmed my identification. There were any number of them, together with some Greater Shearwaters (*Puffinus gravis*). The difference between the two species was apparent at quite a distance, the commoner bird appearing darker.— WILLIAM TOD HELMUTH, JR., *New York City.*

Black Ducks which became very tame.— Four Black Ducks (*Anas rubripes*) have been spending the winter in one of the coves at Hadlyme, Conn. The cove has been frozen over with ice from 18 to 24 inches thick. At the north shore of the cove are two spring holes which are near the main road in the town and every day these ducks have been seen by a great many people. Late in the afternoon of Feb. 15 I carried to the spot about a peck of cracked corn and spread around on the ice and placed some in the spring holes, the next morning some crows came and started to eat the corn, but the ducks drove them away, they were too much for the crows.

Soon after the grain was placed there, two more ducks arrived, the second day two, the third day fifteen, and finally thirty arrived to feed, they are very tame allowing one to approach very near before taking flight.

This shows how tame our wildest birds will become, if not shot at or molested.— ARTHUR W. BROCKWAY, *Hadlyme, Conn.*

The European Widgeon at Gardner's Island, New York.—At Gardner's Island, New York, on December 3, 1911, the writer, in company with Mr. Ludlow Griscom and Mr. Stanley Ladow, had the good fortune to see two adult male European Widgeons (*Mareca penelope*). They were in the North Inlet with a great flock of waterfowl numbering approximately 1000 Baldpates, and 300 Redheads, with a sprinkling of Buffle-heads, Golden-eyes, Red-breasted Mergansers, Lesser Scaups and Black Ducks.

The Widgeons were observed from a low hill overlooking the inlet, under unusually favorable conditions of light and position. They were watched through powerful binoculars for many minutes, at a distance of probably not over 150 or 175 feet, and were most satisfactorily identified.—W. DEW. MILLER, *American Museum of Natural History, New York City.*

The Pintail Duck (*Dafila acuta*) in Winter near Portland, Maine.—The Pintail, as it occurs in Maine, is one of the less common, and less hardy migrants, of more frequent occurrence in fall than in spring. Although Mr. George A. Boardman, cited it as "rare in winter"¹ he gave a different statement for the History of North American Birds,² and we must regard his first statement as unverified, according to existing literature.

The next definite consideration, perhaps was that of E. A. Samuels, who gave its New England status, as "September 10 to the last week in October."³

Finally⁴ Mr. N. C. Brown showed that it had been known to remain in the vicinity of Portland, Maine, on one occasion until November 7.⁵

In 1893, Capt. Herbert L. Spinney entered in his private journal, on November 25 the capture of one at Small Point, Maine, and in 1895, Mr. Walter H. Rich secured a pair, male and female, which had been shot February 10, at Cow Island, Casco Bay. One was taken November 20, 1901, at Cape Elizabeth, Maine, but was not preserved. A female was shot at Scarborough, December 9, 1911, the skull of which is preserved.

On February 15, 1912, in company with Messrs. I. W. and E. B. Pillsbury—both men of long experience and familiarity with our shore and water birds—I saw a Pintail drake among many Black Ducks near Martain's Point Bridge between Portland and Falmouth. This was at noon of a bright day, and with glasses, the markings, its dark head, and crissum, attenuated tail and slender outlines, its manner of feeding, rendered both its species and its sex unmistakable. On the day previous Mr. E. B. Pillsbury and game warden George Cushman had seen it at the same place, when it

¹ 1862. Proc. Bost. Soc. N. H., IX: p. 129.

² 1884. Water Birds 11: 514.

³ 1870. Birds of New Eng. and Adjacent States, p. 492.

⁴ In his *Feathered Game of the Northeast*, 1907, p. 314, Mr. W. H. Rich without specifying time, or place, mentions a pair, "shot in some of the severest winter weather." These birds, now in his possession, were taken in this vicinity, and he has most kindly given me the data credited to him, in this article.

⁵ Proc. Portland Soc. N. H. ii: pp. 31.

was observed to fly for several hundred yards, with characteristic speed and strength. That it was not a new comer is indicated by the fact that Mr. John Whitney, a man with a gunner's keen knowledge of the Anatinae, had reported some weeks earlier, a Pintail wintering in the vicinity. That the bird was strong of wing, after, evidently, surviving the low temperature, of the previous week, which ranged each night below zero Fahrenheit, indicates that it had remained through choice, rather than necessity, and with the foregoing notes, shows that the Pintail occasionally spends at least a considerable part of the winter as far northeast as Portland, Maine.—ARTHUR H. NORTON, *Portland, Me.*

White-winged Scoter (*Oidemia deglandi*) **in Minnesota.**—Late in the Autumn of 1905 a local hunter of this city shot an adult male White-winged Scoter on Lake Minnetonka. I examined this duck in the flesh and tried to buy it but the owner preferred to keep it and had it mounted by the late Henry W. Howling of Minneapolis. It was subsequently destroyed by a house cat.

On Nov. 14, 1911, I secured from a local hunter an adult female in perfect plumage, shot on Lake Minnewashta some two miles distant from this village. This was the only one seen and was not near any other species of duck. Cold weather with snow-storms had prevailed for three days prior to its capture. It was fat and in good condition.—ALBERT LANO, *Excelsior, Minn.*

The Bittern (*Botaurus lentiginosus*) **Wintering in New Jersey.**—On January 21, 1912, an adult Bittern was brought to me alive by my nephew, Robert W. Moore. It had been caught by him the day previous while he was skating at Walker's Pond about a mile and a half southeast of Haddonfield, N. J. For several days the bird had been noted about the pond in a weakened condition. No wounds were discoverable, but its stomach was empty and, I have no doubt, it was weak from lack of food. Two days after it was captured it died in captivity and was mounted.

Since the 5th of January snow had covered the ground and the extraordinary continuance of the freezing weather from that date to the 20th must have made the securing of its chosen food impossible. Possibly the unusual period of warm weather, which lasted throughout the early winter to January 5, tempted this bird, as well as many other species which usually go south, to winter with us. The latest previous record for the state seems to have been November 19, 1878, at a point much farther south in Cape May Co., and the earliest spring record March 30, so that this instance may fairly be termed the first recorded case of this species wintering in the state.—ROBERT THOMAS MOORE, *Haddonfield, N. J.*

Recent Occurrence of the Egret (*Herodias egretta*) **near Portland, Maine.**—Although a few authentic records have been made of the occurrence in Maine of the Egret (*Herodias egretta*), the increasing scarcity of

the species in its usual haunts renders especially interesting the recent capture of a beautiful adult example near Portland. This, a female in full nuptial plumage, was shot not far from Black Rock, Scarborough, on April 23, 1911, and was brought to me in the flesh. It is now included in my collection.—HENRY H. BROCK, *Portland, Maine*.

The Snowy Egret in New Mexico.—The writer has to record another occurrence of this species (*Egretta c. candissima*) in a locality near to the one of his previous record ('The Auk,' January 1909, p. 76).

On October 23, 1911, the writer examined, at the ranch of Mr. Montoya (which is at the junction of the East Fork of the Gila River, and Diamond Creek, N. Mex.) a skin of this species taken from an adult bird shot by Mr. Montoya's son near the confluence of Black Canyon, and the East Fork of the Gila River, N. Mex., in April, 1910. The bird had been shot with a rifle, and in the skinning, was so damaged, that its plume characteristics were not available for sex determination. The present record makes the third specimen of this beautiful little Egret taken within a circle whose diameter is less than one hundred miles, the two other records being the one mentioned above, and one by Maj. E. L. Munson, U. S. A., in 'The Auk' of April, 1907, p. 212.—W. H. BERGTOLD, *Denver, Colo.*

King Rail (*Rallus elegans*) at Springfield, Mass.—On the thirtieth day of August, 1911, a King Rail was captured in the wild rice that is found in abundance along the shores of the Connecticut river a few miles below Springfield. There are but two previous records of the occurrence of this bird in the Connecticut valley near Springfield.—ROBERT O. MORRIS, *Springfield, Mass.*

Yellow Rail (*Coturnicops noveboracensis*) in Massachusetts.—During the fall of 1911, three specimens of the above Rail, which is generally supposed to be rare in this state, were brought to my attention. Curiously enough two of these were shot at the same place though at very different dates. The first one was shot on October 3 at West Roxbury by Mr. W. P. Henderson. The second was taken at Chatham on October 2 by Mr. John J. Chickering. The third was shot on the very late date of November 25 also at Chatham by Mr. Russell Bearse. This latter specimen was larger and darker than the others and the yellow on the breast was not so bright. I saw all of these birds at the store of Mr. C. Emerson Brown, the Boston taxidermist, where I carefully examined them.—S. PRESCOTT FAY, *Boston, Mass.*

Yellow Rail in Michigan. A Correction.—In 'The Auk' for January, 1912, p. 101, in my notes on the Yellow Rail, *Coturnicops noveboracensis*, appears the following: "This is the second recorded Michigan specimen and the third noted in Wayne County." This is, of course, a

pen slip on my part for what I intended to state was that "This is the second recorded specimen and the third noted in Wayne County," as there are a number of Michigan records for the Yellow Rail in various parts of the state.—B. H. SWALES, *Grosse Isle, Mich.*

An Albino Semipalmated Sandpiper.—In view of modern inquiry into the significance of abnormal color phases among animals, it may be of interest to record a totally albino specimen of *Ereunetes pusillus*. The specimen, No. 10466, Museums of the Brooklyn Institute of Arts and Sciences, sex undetermined, age apparently adult, was purchased at auction from the estate of the late J. J. Crooke, Esq., of Great Kills, Staten Island, N. Y. Superficially it is entirely white save where the plumage is fat-stained, but the feathers are uniformly dark at their bases. The inscription on the label reads,—"(?) Shot on the shore of Long Is., Oct. 20, '62, out of a flock of sanderlings (T. arenaria). Resembles a T. pusilla in everything but color."—ROBERT CUSHMAN MURPHY, *Museum of the Brooklyn Institute.*

Last Record of the Piping Plover (*Egialitis meloda*) in New Jersey.—The statement in Stone's Birds of New Jersey that the last record of this species in New Jersey was a bird, observed by Mr. Wm. L. Baily, August 18, 1897, recalled to my mind the collection of a male in the late "nineties." Examining my collection I found the specimen with a tag attached, stating that it was taken at Ocean City, N. J., August 3, 1899. Apparently, then, this is the last recorded bird collected in the state. It was shot out of a small flock of Least Sandpipers, which had settled on the beach to feed. I remember my surprise at finding it among the other victims of my shot and I believe it was the only bird of this species in the flock.—ROBERT THOMAS MOORE, *Haddonfield, N. J.*

Columbian Sharp-tailed Grouse in Wisconsin.—A new record for the state is the capture of a specimen of *Pediæcetes phasianellus columbianus* by Mr. A. J. Schoenebeck in Oconto County.—In his list of the birds of this county dated October 27, 1902, he says "On October 25, 1897, I shot an old male of this species near the Peshtigo Brook."—He also records *Pediæcetes phasianellus campestris* as "Resident: common. I found several nests of this bird on the plains in the northwest part of this county. Begins laying the last part of May."—The above is to correct a misprint in my "Notes on Some Rare or New Birds to Wisconsin on page 275-276, 'The Auk,' Vol. XXVIII, April, 1911.—HENRY K. COALE, *Highland Park, Illinois.*

Nesting of the Passenger Pigeon (*Ectopistes migratorius*) in New York.—On May 17-19, 1878 I was camped on the west bank of Moose River, Herkimer County, N. Y., near the confluence of the South Branch. The heavy spruce and hemlock had been recently cut out but the hard-woods and much of the smaller growth of conifers remained.

We occupied an abandoned woodchoppers' camp, a quarter mile back from the river and probably two miles from the old road leading from Moose River Tannery to Old Forge. On the 17th several Wild Pigeons were seen frequenting a clump of spruces, averaging perhaps 60 feet high. As now recalled there were probably eight or ten birds seen and in passing from our camp to the river we saw them several times in the same vicinity and finally a few nests were noticed in these spruces. If I remember correctly there were two nests in one tree and two others seen in different trees. On the 17th we thought none of them contained eggs although we did not climb to examine. On the 18th a single egg was taken, perfectly fresh, and we thought it had been deposited that morning, the bird being seen to leave the nest. The nest was on a horizontal limb of the spruce about 30 feet from the ground and 8 to 10 feet out from main trunk, a frail loosely constructed collection of small twigs saddled on the limb and kept together by the small branches of the growing tree.

While this is rather ancient history it may be of interest now that the species appears to be extinct and details of its nesting are not abundant.
—C. J. PENNOCK, *Kennett Square, Pa.*

Mississippi and Swallow-tailed Kites in Knox Co., Ind.—On Sept. 18, 1911, I observed a Mississippi Kite (*Ictinia mississippiensis*). It was flying at a moderately low altitude over some cleared bottom land near Benn's Creek, Knox Co. I could distinguish the different shades and stripes of color very distinctly. These beautiful Kites have become quite rare. Formerly they were more common and it is claimed that they nested here.

In the year 1890, in August I also observed two Swallow-tailed Kites (*Elanoides forficatus*) in about the same location. One of these birds was afterwards killed, mounted and placed on exhibition at J. M. Freeman's drugstore, at Bicknell. They also nested here in early days, but are becoming quite rare.—E. J. CHANSLER, *Bicknell, Knox Co., Ind.*

Gray Gyrfalcon (*Falco rusticolus rusticolus*) in Minnesota.—On Dec. 11, 1894, a farmer living near Madison, Lac Qui Parle Co., brought to me a magnificent specimen of this rare species, which he shot near his home. It is a female and in perfect plumage. Its stomach contained the remains of the Prairie Hen (*Tympanuchus americanus*). Its weight was 3 lbs. 10 oz. Its measurements are as follows—L. 24, Ex. 50, W. 16, T. 9.15 in.—ALBERT LANO, *Excelsior, Minn.*

Early Occurrence of the Saw-whet Owl.—Believing that I have one of the earliest records of the Saw-whet Owl (*Cryptoglaux a. acadica*) for Long Island, I should like to record it.

On October 26, 1911, I was told that a "young owl" was killed on one of the streets of Elmhurst, Long Island. I looked it up and found it was a Saw-whet Owl. I secured it and it is now in the collection of the American Museum of Natural History.—HOWARTH S. BOYLE.

Diurnal Activities of the Great Horned Owl (*Bubo virginianus virginianus*).—The observations here given were made from or near my home, which has a prairie location a mile and a half from the woods, that form the western boundary of the timber belt along the Mississippi River. There are many farm clearings near the river, but the western edge of the forest remains uncleared, and in its original untamed condition throughout a strip varying from a mile to three miles in width. In it various solitude-loving species, such as the Red-tailed Hawk, Northern Pileated Woodpecker, and Great Horned Owl still flourish. To reach my neighborhood the last named species must cross a treeless area two miles wide, unless sometimes it hides in evergreen trees that have been planted in yards. During the past winter these owls have been observed much more frequently than in previous seasons; sometimes in the night, but more often by day—in the morning, at noon, in the afternoon, and in the early evening. In the woods in spring and summer it is not an uncommon experience to meet them abroad in the daytime. A neighbor informs me that early in February he saw five of these great birds sitting at the same time in a large water-elm, that is growing on the Mississippi River bottom lands.

At 1.30 o'clock in the afternoon of November 8, 1911, a Great Horned Owl was discovered sitting on the ground in our front yard, where it remained an hour before put to flight by the cat. It sat in an open space, thirty-five feet from the house, and about that distance from the trunks of three evergreen trees. While there it disgorged a pellet, and it safeguarded its position by many watchful turnings of the head.

Just after sunset on December 3 I was halted in the middle of the road by the approach of one of these owls. Flying a little above the telephone wires it crossed the road about fifty yards ahead of me; wheeling it flew back over the road, turned, and again recrossed it, evidently hunting for rabbits that might be skulking beside the fences. Again another rabbit hunt of the Great Horned Owl was watched for a half hour on January 20. It was first seen at three o'clock in the afternoon flying over a field whose covering of unsullied snow in the bright sunlight presented such a dazzling surface as might blind the strongest eyesight. It seemed a test of this species' power of vision that may well compare with the instance cited by Dr. Coues in which these owls watched two white cranes circling high in the air in the direct rays of the sun. Except for a few minutes when on two or three occasions the owl alighted on the snow it was in the air, beating back and forth over an area a little more than an eighth of a mile in length and a trifle less than that distance in width, having on its eastern border a fence and a short row of willow trees. The bird sometimes rose to a height of seventy-five feet, but maintained an altitude of forty feet or less the greater portion of the time. A half mile west of this locality that morning two school-boys saw two of these owls together, and a few days later three of them were seen flying about a solitary willow.

In this vicinity the only apparent check upon the Great Horned Owl

seems to come by way of the steel-trap, when the species becomes too familiar in the farmers' poultry yards. When skins are desired a good method of killing the trapped owls employed by two young farmers is that of smothering the birds in the oat-bin.— ALTHEA R. SHERMAN, *National, Iowa*.

Status of the Picidæ in the Lower Rio Grande Valley.— Personally, I have, to the date of writing, found five forms of Woodpecker in the Lower Rio Grande Valley, within the limits of Cameron county, they are:

1. *Dryobates scalaris symplectus*. Abundant resident.
2. *Sphyrapicus varius varius*. Common migrant and occasional winter sojourner.
3. *Centurus aurifrons*. Abundant resident.
4. *Colaptes auratus luteus*. Fall and winter visitant.
5. *Colaptes cafer collaris*. One record, ♂ Jan. 8, 1912, collected by myself, and now in collection of Dr. J. Dwight, Jr.

Possibly *Melanerpes erythrocephalus* occurs as a winter straggler, though I have not yet found it.

Indications point to the presence of another Woodpecker, as yet unrecorded by ornithologists. It is known to a number of the native Mexican hunters, who designate it as "carpentera grande"; and describe it as much over a foot in length; black, with scarlet crest: generally occurring during the warm season, and confined to the heaviest growth bordering the river. Totally absent some years. The season of occurrence would at once eliminate the possibility of it being *Asyndesmus levisi*; and the only other Woodpecker that seems to fit, even in fair degree, the description and conditions is *Phlaeotomus scapularis*. This Mexican species ranges well up into the state of Tamaulipas, so it might furnish us stragglers now and then, as in the case with *Amazilia tzacatl*, *Ceryle torquata*, *Trogon ambiguus*, etc.— AUSTIN PAUL SMITH, *Brownsville, Texas*.

Differences due to Sex in the Black Swift.— In the treatment accorded *Nephæcetes niger borealis* by Ridgway in the volume last published of his "Birds of North and Middle America" (vol. 5, 1911, pp. 703, 707), the sexes are declared to be different in markings, the adult male uniformly sooty underneath, the adult female with the feathers of the posterior underparts always more or less distinctly tipped with whitish. A different conclusion had been arrived at by Mr. Frank M. Drew (Bull. Nutt. Orn. Club, VII, 1882, 182, 183), who declared that the fully mature female was indistinguishable in color from the male, four years being assumed to be the length of time required to attain this plumage. Mr. Ridgway cites Drew's plumage description in full, with the following comment: "Mr. Drew is undoubtedly mistaken, however, in assuming that the sexes are alike in coloration, for all the sexed specimens examined by me from whatever locality, show that all those with white-tipped feathers on posterior underparts are females and all those without these white-tipped feathers

are males. This is true of all the subspecies, except that in the West Indian forms these white tips are much less distinct, sometimes nearly obsolete" (p. 707, footnote b).

In a series of Black Swifts collected by myself in southeastern Alaska in June and July, 1909 (see Swarth, Univ. Calif. Publ. Zool., 5, 1911, 71) there is one female (no. 9363 Univ. Calif. Mus. Vert. Zool.) that in color and markings is absolutely indistinguishable from the males. The underparts are uniformly dark (except for one pure white feather on the throat), of exactly the same sooty hue as the males, and with not the slightest trace of the scale-like white markings on the abdomen, which Mr. Ridgway believes to be invariably present in the female. Like the others, however, it differs from the males in having a square, rather than a forked tail. The birds collected by me were all carefully dissected to ascertain the sex, and the possibility of there having been a mistake made in this specimen, is precluded by the fact that this particular female contained within it an egg that would have been laid, probably within twenty-four hours. There is no doubt, therefore, that in this case we have a female indistinguishable in coloration from the male, so that sometimes, at least, the sexes are alike in coloration, as Mr. Drew affirmed.

It is with some reluctance that the above statements are offered. The writer is unwilling to appear to be hypercritical of a work so comprehensive, and so admirably carried out, that it should be spared carping comment on immaterial points, and these remarks should not be taken in that sense. They are merely the contribution of an additional fact that may modify previous conceptions of this particular species.—H. S. SWARTH, *Museum of Vertebrate Zoölogy, University of California, Berkeley, California.*

A Crested Flycatcher in December at Cambridge, Mass.—On December 20, 1911, in the Fresh Pond Reservation, Cambridge, I saw a Crested Flycatcher (*Myiarchus crinitus*). It was at midday in the warm sunshine. The bird was among shrub growth planted on a bank of some extent on the northwestern border of the reservation. As I followed along at the foot of the ridge, my attention was quickened by hearing call-notes which could not be ascribed to any bird that might be expected to be heard at this season. When shortly my glasses covered it, it was immediately recognized to be a Crested Flycatcher. The pale reddish wing and sulphur-yellow side were plainly presented to view, also the pale margining of the wing-coverts. Later the pearl-gray breast was seen and the sulphur-yellow of the entire under parts. The bird took short flights from one shrub to another and frequently dropped to the ground for an instant, at once returning to a near perch. Apparently it was procuring its food from the ground, perhaps discerning and obtaining the bodies of dead insects. The ground was bare and had been so up to this time. No perch taken was more than two or three feet high, and usually they were only a few inches above the ground. I followed the flycatcher along the shrubbery for five hundred feet or more, while it was thus engaged and remained with it for

half an hour, often viewing it at a distance of not more than fifty feet. The temperature of the early morning had been 22°. The noon day temperature in the shade was officially given as 39°. The air at the time, however, was soft and warm and calm. Of course there was no insect life in the air, and the bird plainly was not looking for it there. In the afternoon of the following day an hour was spent searching for the bird, but I could not find it.

The Crested Flycatcher is a rare summer resident of Eastern Massachusetts, being so characterized by Mr. William Brewster in his "Birds of the Cambridge Region" and by Dr. C. W. Townsend in his "Birds of Essex County." The latest record for a bird of the species is given by Mr. Brewster as September 26, in 1897, when one was seen in Arlington by Dr. Walter Faxon. Messrs. Howe and Allen in their "Birds of Massachusetts" give the limit of the season as September 12 and a record without specific data of October 15. Mr. Richard M. Marble has a record of one seen by him on October 2, 1910, in the Allendale woods, West Roxbury.

This Cambridge bird, therefore, so far as I am able to determine from records at hand, furnishes the only occurrence of the species later than October 15 and was present sixty-six days after that date. The same means which had afforded it subsistence in October and November were doubtless present in December up to the day it was observed. No snow had as yet fallen to cover the ground. The mean temperature of December was officially given as 6° above the normal and the highest for twenty years. The temperature rose above freezing on all except four days. Thus this flycatcher had had unusually mild weather conditions under which to extend its remarkable stay.

Messrs. Baird, Brewer, and Ridgway in their "History of North American Land Birds," vol. 2, p. 336, state, "During the early summer this species [Great Crested Flycatcher] feeds chiefly upon insects of various kinds; . . . afterwards, as if from choice, it chiefly eats ripe berries of various kinds of shrubs and plants, among which those of the poke-weed and the huckleberry are most noticeable." Many of the shrubs among which the bird moved on the day it was observed were berry-laden.—HORACE W. WRIGHT, Boston, Mass.

The Starling (*Sturnus vulgaris*) at Springfield, Mass.—In the spring of 1908 the presence of a single Starling was first noticed in this vicinity. Since that time the number observed in this part of the Connecticut valley has rapidly increased until this winter flocks containing upwards of one hundred individuals have been often seen. They now occasionally come into the very center of the city, frequenting the spires and cupolas of the churches and public buildings.—ROBERT O. MORRIS, Springfield, Mass.

Starling (*Sturnus vulgaris*) in Chester Co., Pa.—While the Starling has long been a common resident in the vicinity of New York and adjacent

territory very few have hitherto been reported from Chester Co., Pa., and they only very recently I believe. My first observation of them was made within six miles of West Chester, east of the town Nov. 30, 1911, when two of them were noticed in a field, on the ground. Three days later, on Dec. 3, I observed quite a large flock of them closely associated with a belated colony of Purple Grackles, they were seeking shelter for the night in a clump of evergreen trees on a lawn in the town and numbered thirty or forty individuals, enough to start a good sized colony next spring if they remain.—THOMAS H. JACKSON, *West Chester, Pa.*

Strange actions of a Red-eyed Cowbird.—I have always considered the Cowbirds as playing the character of sneak, when necessity compelled them to seek out the nest of their feathered kin, but in view of the following incident I feel somewhat dubious.

Toward the end of May, 1911, a pair of Sennett's Oriole (*Icterus cucullatus sennetti*) built their semi-pensile nest, composed almost entirely of fibers from stem or leaf of Spanish Dagger,¹ Palmetto² and Banana, in or rather attached to a vine-stalk of a Rosa de Montana,³ that shaded the library windows of our house from the morning sun. Therefore, the position of the nest allowed easy observation at all times. Early one morning, after the complement of three eggs had been laid, and were being brooded, a female Red-eyed Cowbird (*Tangavirius aeneus involucratus*) was noted on the ground near the site of the nest. Its restless manner held my attention, and within a very few moments the cause was apparent. Walking to the base of the vine-stalk supporting the nest it flew upward several feet then grasping the stalk continued its vertical progress, at the same time flapping the wings vigorously, thereby producing considerable noise. Reaching a point well within a foot of the nest—or about six feet above ground—it arrested progress, but continued the wing movement. Although this needs have perturbed the setting Oriole, she never once quitted her treasures. After a period of a minute or thereabouts the Cowbird flew away. Two days later the same scene was reacted, only, on this occasion, the departure of the Cowbird was due to the appearance of the male Oriole on the scene. The nest was examined at various times thereafter and it never held more than the rightful contents. Two eggs eventually hatched, but the young never left the nest alive, being destroyed by some mammal, possibly the Texas Opossum (*Didelphis marsupialis texensis*) a serious enemy to bird-life in southern Texas.—AUSTIN PAUL SMITH, *Brownsville, Texas.*

The Baltimore Oriole (*Icterus galbula*) Wintering in New Jersey.—An immature male of this species was found dead and frozen stiff in Haddonfield, N. J., January 16, 1912, and brought to me by my nephew, Henry

¹ *Yucca treculeana*.

² *Antigonon leptopus*.

³ *Inodes texana*.

D. Sherrerd. The bird seems to have passed its second autumn, having attained the black throat of the adult, but only a clouded suffusion of orange on the breast and rump. This is the first winter record of the species for New Jersey. I have to thank Mr. Witmer Stone for identifying the specimen and the Division of Birds, United States National Museum for corroborating that identification and supplying additional information. During the preparation of the skin no wounds were discovered, but the stomach proved empty and the body's supply of fat absolutely exhausted. The upper mandible is almost broken through near the tip and the plumage of the under parts very dark, as if stained by contact with the earth. However, snow had covered the ground for twelve days and was accompanied by constant cold weather. Although the bird may have been in a starved condition previous to the 5th, when the first snow arrived, I am sure it did not die until about the time it was found, for several snowstorms occurred between the 5th and the 16th and these would have covered the body up, which on the contrary was found on top of the snow. It is likely that the mild early winter lured the bird to stay with us, that the accident to the bill rendered the procuring of food difficult, and that the sudden and bitter cold of the 5th and subsequent days completed the work starvation had begun.—ROBERT THOMAS MOORE, *Haddonfield, N. J.*

Many Purple Finches at Portland, Maine, in February.—The mountain ash trees in the Western Promenade section of Portland attracted no Robins,¹ under my observation, during the very cold winter of 1911-1912; but they nourished an extraordinary number of Purple Finches (*Carpodacus purpureus purpureus*) in the month of February. On Feb. 2 I saw four birds together, at least one of them being in rosy plumage. On Feb. 28, about 9.30 a. m., I counted fourteen birds in one tree, most of which were in rosy plumage. On Feb. 29, about 2.30 p. m., I counted fifty-five birds in and about seven mountain ash trees, twenty-two of them being at one tree and a majority of the total number, apparently, in rosy plumage. On each one of these occasions all the birds were sluggish and rather silent.

Since the first announcement,² of the wintering of this species at Portland, twenty-four years ago, it has been seen by several observers, and there are winter records which need not here be cited, for other localities in Maine; but I believe it has not hitherto been noted except in small numbers.—NATHAN CLIFFORD BROWN, *Portland, Me.*

Crossbills (*Loxia curvirostra minor*) in Chester Co., Pa., in Summer.—I spent June 16-17, 1911, in company with John D. Carter of Lansdowne, Pa., on and near the Pine barrens of a serpentine ridge in the extreme southwest corner of Chester County, Pa., bordering on the Maryland line. In

¹ Auk, XXVIII, pp. 270-272.

² John Clifford Brown, Auk, V, p. 209.

the scattered growth of Pitch Pine (*Pinus rigida*) which covers the barrens and reaches a height of from fifteen to twenty-five feet we found a group of four Crossbills (*Loxia curvirostra minor*) which we watched for ten minutes or more. They appeared to be two adults and two young in juvenal plumage. One certainly was and we assumed that the other was also; it kept up a continual calling as if to bring the old birds but we did not notice them feed it.

They were gleaning on the new growth of the pines, quite indifferent to our near approach, and seemed to be eating the pinkish terminal buds, frequently cutting them off entirely or in part. We readily approached within thirty feet of them.—CHARLES J. PENNOCK, *Kennett Square, Pa.*

Lapland Longspur (*Calcarius lapponicus lapponicus*) in Delaware.—The occurrence of this species on the Atlantic coast plain more frequently than had formerly been supposed, was suggested by Mr. R. F. Miller, in *Cassinia* for 1906, p. 63, and the same conclusion was presented to me when these birds were found last winter near Delaware City, Del., as noted in 'The Auk' for January, 1911, p. 114, a subsequent trip to the same marshes, on December 19, 1910, resulted in finding a number of Longspurs and five specimens were secured.

On November 9, 1911, an examination of the same ground discovered Shore Larks (*Otocoris a. alpestris*) fairly abundant; this being the species with which the Longspurs had been found associated the previous winter, but no Longspurs were recognized. On February 1, 1912, with snow and ice covering most of the same marsh, I made a lengthy search for Longspurs. Flocks of Shore Larks were found and followed for several hours. They were in bunches of 4, 8, 12 and 25. In the earlier part of the day the ice and snow-crust were brittle, walking was noisy and the birds not easily approached at close quarters, but by afternoon the sun shone out, the noise was lessened and the birds were getting more food and showed less wariness. The smaller flocks contained no Longspurs. A lone bird that was flushed and gave a two-note rather soft, sweet call and flew high and wild, was thought to be a Longspur, but not until the largest flock was closely followed for an hour or more and carefully examined repeatedly, did I suspect it contained other than Shore Larks. Finally one bird apparently smaller was seen to fly off with the flock and later when they were flushed, on a near approach, the single remaining bird was shot and proved to be a Longspur, adult female. While I think there were few if any other Longspurs with these Shore Larks, the fact of again finding even one of the rarer species in the locality would perhaps indicate their rather regular occurrence.

On bare ground it was impossible to distinguish the two species at a distance of twenty-five yards. On the snow or as they arose singly the distinguishing marks of the Shore Larks could be recognized but when the alarm was given and several or all arose together it was not possible to determine definitely the presence of Longspurs among a large number of Shore Larks.

These notes would seem to suggest that a close scrutiny of the larger flocks of Shore Larks would show a more frequent visitation of the Long-spurs than is generally supposed.—C. J. PENNOCK, *Kennett Square, Pa.*

White-throated Sparrow in Idaho.—On November 2 last, a pet cat brought in a fine specimen of White-throated Sparrow (*Zonotrichia albicollis*) which, on skinning, proved to be an immature male. The bird was in good plumage, the white throat and yellow spot before the eyes making its identification absolute, and fortunately the skin was practically undamaged.

So far as I can learn, this is the first record of the White-throated Sparrow in Idaho.—L. E. WYMAN, *Nampa, Idaho.*

Painted Bunting (*Passerina ciris*) in Minnesota.—On May 2, 1893, I shot an adult female near Madison, Lac Qui Parle Co., in the southwestern part of the state. The skin remained unidentified in my collection until September, 1910, when it was sent to the Biological Survey at Washington where it was examined by Mr. Harry C. Oberholser.—ALBERT LANO, *Excelsior, Minn.*

Lawrence's Warbler (*Vermivora lawrencei*) in Chester County, Pa.—The Serpentine barrens of the southern part of Chester County, Pa., are interesting on account of the presence of Prairie Warblers (*Dendroica discolor*) among the scattered pine growth, this being apparently the only spot in the county where this species breeds. On June 16, 1911, John D. Carter and myself found them quite abundant and about two miles beyond the barrens in deciduous woods not more than 250 feet above sea level we were surprised to find a Chestnut-sided Warbler (*D. pensylvanica*) busily engaged in searching for food.

Next day about three miles west of the barrens and close to Octoraro Creek on a steep hilltop 300 feet elevation we had a clear and continued view of a Lawrence's Warbler (*Vermivora lawrencei*). There was a clearing grown up to deciduous new growth, twenty to thirty feet high. As we entered by a wood road the bird flew up into a large solitary tree by the roadway and we had a clear view of it at a distance of about thirty feet. It remained on the same perch at least three minutes, and sang four or five times—two single high-pitched fine spun inspirations and then three or four shorter notes rapidly uttered to give a trill effect "Tse-e-e-e", Tse-e-e-e-e, Tsē Tsē Tsē Tsē." The markings of the head were identical with those of an adult male *V. chrysoptera*, the body and wing markings those of *V. pinus*, the combination appearing quite different from the figure in Chapman's "Warblers of North America" but identical with the plate in the Proceedings of the Academy of Natural Sciences of Philadelphia for 1874.—CHARLES J. PENNOCK, *Kennett Square, Pa.*

A Palm Warbler in winter at Boston, Mass.—In the Arnold Arboretum at Jamaica Plain a Palm Warbler (*Dendroica palmarum pal-*

marum) was seen by me on December 14, 1911, and was observed by myself and others upon various days to the end of the month. Mrs. A. M. C. Levey informs me that it was still present on January 3, 1912. The bird remained about the museum building and was always observed in close proximity to it. Sometimes it was seen upon the grass plots in front of the museum and even upon the door-steps, quite as familiarly disposed as a Chipping Sparrow. When under observation it kept much of the time on the ground, as is not unusual with birds of the species, evidently obtaining its food there. Its haunt was backed by a thick growth of young conifers standing upon a bank having a southeastern exposure, in front of which are shrubs of various kinds and crab-apple trees, and at the border a shallow stream flows to the meadow. The warbler was usually feeding around and under these shrubs and crabs, silently, but occasionally giving its characteristic call-note. It was, when first seen, in association with a little company of four White-throated Sparrows (*Zonotrichia albicollis*), but later was usually alone and unaccompanied. In plumage it was a good type of the species, having a dingy white breast and bright yellow under tail-coverts, with obscurely streaked sides. It constantly wagged its tail.

The Palm Warbler is a rare autumn migrant in this section and has seldom been seen after the middle of October. Mr. William Brewster records one seen by him in Cambridge on October 28, 1895. Mrs. Edmund Bridge informs me that two were present on her home grounds in West Medford on November 19, 1911. Mr. Ralph Hoffmann has a published record of one seen in Cambridge on December 6, 1902 (Brewster's "Birds of the Cambridge Region").

As regards the food which has been obtained by this warbler, it is of interest to quote the testimony of Mr. B. S. Bowdish, given in 'The Auk' for January, 1903, p. 19, where he says of the Palm Warbler, "A large number of stomachs examined in Cuba contained seeds." Again, in 'The Auk' for April, 1903, pp. 193 and 195, Mr. Bowdish states, "So far as I have noticed, few writers have given much attention to the extent to which many birds of families which in the States are considered more or less strictly insectivorous, feed in the West Indies largely on fruit and seeds . . . I also found seeds in the stomachs of the Black and White, Parula, Myrtle, Palm, and Prairie Warblers, particularly the Myrtle and Palm, the latter feeding almost exclusively on seeds of weeds near Santiago and Guama, Cuba."

Mr. Harold L. Barrett later informed me that he had observed this warbler in its chosen haunt on November 26, 27, and 29 and on December 4 and 9. So the presence of this bird, based on records, extended from November 26, 1911, to January 3, 1912, thirty-nine days. After this time it could not be found. Snowfalls occurred followed by severe cold weather.
— HORACE W. WRIGHT, *Boston, Mass.*

Hooded Warbler (*Wilsonia citrina*) at the Delaware Water Gap, Pa., in July.—In the rather dense woodland on the northern slope of Mt. Minsi at the Delaware Water Gap, Pa., I saw a beautiful male Hooded Warbler (*Wilsonia citrina*) on July 5, 1909. I was in a great hurry unfortunately and did not have time to investigate. When I passed the bird flew into the lower branches of a tree and called anxiously as though his nest was near.—EDWARD J. F. MARX, *Easton, Pa.*

Mockingbird Notes from Massachusetts.—On October 23, 1911, I took at Nantucket a young Mockingbird, and at the same time I saw the two parent birds. There is no doubt from the condition of the plumage that this bird was bred not far from the spot where it was taken.

Mr. Francis H. Allen recorded in 'The Auk' (Auk, XXVII, 1910, p. 460) a pair which successfully raised a brood of four young near his house in West Roxbury in 1909, one of the parent birds having been seen off and on from November 22, 1908, the other parent bird was first seen early in April, and the birds were last seen August 8. A Mockingbird was seen in the same locality October 7, 1909, to May 14, 1910, November 6, 1910, to April 14, 1911, and again November 5, 1911; this was presumably the same bird.

Mr. Horace W. Wright reports seeing Mockingbirds in the Parkway near the Longwood railway station several times in the winter of 1910 and the spring of 1911; three if not four birds were seen repeatedly. These birds were also seen by Mr. E. E. Cadue and other observers. None of these birds was seen after the middle of April. Dr. Charles W. Townsend reports seeing a Mockingbird at Ipswich August 26 and 28, 1910. Mr. Winthrop S. Brooks saw a pair at Manomet, Plymouth County, on December 14, 1911. One of these, a female, he shot and gave to the Boston Society of Natural History. These records show that the Mockingbird is more common in Massachusetts than is generally supposed.—THOMAS S. BRADLEE, *Boston, Mass.*

A Catbird spending the Winter in Connecticut.—On the morning of January 14, 1912, I was somewhat surprised to see a Catbird (*Dumetella carolinensis*) at Old Lyme, New London County, Connecticut, while walking along one of the main roads in the town and about one mile from the sound shore. The temperatures on the morning of the 13th was from 15° to 20°. I watched him for about ten minutes as he jumped from bush to bush along the roadside.

Also saw on February 14 a Belted Kingfisher (*Ceryle alcyon*) in zero weather when the Connecticut river, ponds, coves, etc. were frozen from fifteen to twenty-four inches thick and no chance for good fishing. A single Kingfisher spent the winter at Hadlyme two years ago, 1910.—ARTHUR W. BROCKWAY, *Hadlyme, Conn.*

Note on *Hapalopteron familiare* (Kittl.).—For many years there have been in the collection of the Philadelphia Academy two specimens of a bird resembling in general style of plumage a faded Kentucky Warbler (*Oporornis formosa*). They formed part of the mounted collection of Dr. T. B. Wilson, and while one was without data of any kind the other bore a tag containing the following which I have only recently been able to decipher, "Is. Arzobispo Port Lloyd Lat. 27.05 36 N. Long. 139 51. 16 E. Samedi 9 Mars. 1850 Yeux noirs."

Recently I accidentally came across the description of *Ixos familiaris* Kittlitz in a footnote, p. 120, Vol. VI, Brit. Mus. Cat. of Birds and at once recognized that it applied to our birds. Seeböhm in the Ibis, 1890, p. 100, refers to the rediscovery of the species by Mr. Holst in 1889 and Blackiston and Pryer mention two live specimens in the Tokio Museum (Trans. As. Soc. Japan, 1882, p. 138), but I can find no other records of the bird, and our specimens therefore have considerable historical interest being apparently the first ones obtained after the original discovery of the species.—**WITMER STONE, Academy of Natural Sciences, Philadelphia.**

Hermit Thrush Wintering at Easton, Pa.—On January 1, 1908, I had the great pleasure of seeing a Hermit Thrush (*Hylocichla guttata pallasi*) in a woodland on the outskirts of Easton, Pa. Realizing that this was an unseasonable date for this species, I took great care in establishing its identity. Its peculiar habit of raising and lowering the tail with an accompanying flap of the wings together with the characteristic coloring of the upper parts—tail a brighter brown than the head—named it conclusively. Through January and February the bird was seen seven times, the last time being on February 29, so I had ample time to observe it. During these two months it remained in the same piece of woodland and some second-growth adjoining. The bird endured vigorous weather, for the thermometer several times fell almost to zero. The Thrush showed a great fondness for the berries of the hackberry (*Celtis occidentalis*) and spent much of its time feeding in one of these trees.

Four years later, on January 1, 1912, I saw another Hermit Thrush in a wood near where the one had been seen in 1908. This bird was also closely watched and satisfactorily identified. However, I did not see it again although I looked for it on several different occasions.—**EDWARD J. F. MARX, Easton, Pa.**

Correction.—On page 107 of the January Auk the size of the Water Fowl Cage in the Lincoln Park Zoo in Chicago is given as "40 X 15 feet," a mistake of the compositor—it being 50 X 150 feet. The idea of 200 wild ducks, geese and other birds being confined in a cage 40 X 15 feet is of course ridiculous.—**HENRY K. COALE, Highland Park, Ill.**

Greenland Wheatear Seen in Massachusetts.—On Sept. 17, 1910, I saw a Wheatear at Pigeon Cove, Mass., at the extreme point of Cape Ann,

and although I did not secure the bird, I had a good opportunity to observe it for sometime, making careful note of the size and coloring of the bird and the characteristic marking of the white upper tail-coverts and white tail feathers, broadly tipped with black.

I flushed the bird four or five times and as it made low flights from me, it spread its tail, which looked short, and the large white spot, on the upper tail-coverts and tail, with broad blackish band at the end of the tail, was particularly conspicuous.

The bird was alone and on some large loose rocks, at the top of the broad expanse of rock, which gradually extends to the ocean, and when flushed could have easily flown to the nearby shrubbery and trees, but in each case flew to another part of the loose rocks. At one time, when I thought the bird had gone, I was surprised to have it dart down from above in an almost perpendicular flight and light on one of the rocks in front of me.

For about a week previous to Sept. 17, there had been a very strong north wind.

The subspecies was necessarily undetermined but undoubtedly was the Greenland Wheatear (*Saxicola ananthe leucorhoa*).

The above note is offered as of interest, if not conclusive proof of the occurrence of the bird in Massachusetts.—CHAS. R. LAMB, *Cambridge, Mass.*

Stray Notes from New Brunswick.—***Uria lomvia lomvia*.** An adult male in my collection was picked up in the snow at Barton Station on the Keswick River, eighteen miles above Fredericton, on Nov. 26, 1902. The stomach was empty and no doubt the bird, being lost had starved to death.

***Cryptoglaux acadica acadica*.** Fairly common in York County frequenting the dense spruce and cedar forests. At Scotch Lake on April 8, 1902, I found a nest in a deserted woodpecker's excavation in a spruce stub. The nest entrance was about fifteen feet from the ground and ten inches from top of stub. The entire lower half of the hole was filled with feathers and rabbit fur on which the six pure white eggs were layed.

***Phloeotomus pileatus abieticola*.** Fairly common in the spruce forests near Fredericton where they nest. Observed several times along the Tobique during winter of 1903-4.

***Passerherbulus nelsoni subvirgatus*.** Common on the islands in the St. John River above Fredericton especially on Sugar Island where they nest in considerable numbers. An adult male secured on Keswick Island, Aug. 20, is in my collection.

***Bombycilla garrula*.** I well remember the one and only time I ever saw this species in the east. It was a cold raw day, March 10, 1902, that I found a flock of five feeding on the frozen berries of mountain ash in a front yard on Charlotte St., Fredericton. They were very tame and I watched them as they fed, at a distance of not more than twenty feet.

***Dendroica tigrina*.** Common during migration in the spruce forests around Scotch Lake where they can usually be found in early May feeding

in company with other warblers. Only one nesting record for the Province is known to me, namely St. John, 1884.—STANLEY G. JEWETT, *Portland, Oregon.*

Some British Columbia Records.—**Sterna caspia.** CASPIAN TERN—An adult Caspian Tern was seen about the head of Okanagan lake for some time on July 8, 1910, keeping just out of gun-shot of me. It was in full summer plumage and constitutes the first definite record of the species for British Columbia, though I was practically certain of my identification of one some three years ago at the same locality.

Micropalama himantopus. STILT SANDPIPER.—I saw this Sandpiper again last August for the first time since 1899.

The first were seen on August 8 when I took three which were feeding with some Lesser Yellowlegs; two days later at the same place (Okanagan Commonage) I saw five more and collected four of them. All were young birds in the first plumage with a few feathers of the gray winter dress coming in.

Ereunetes pusillus. SEMIPALMATED SANDPIPER.—I wish once again to put on record that this is a common, or even abundant, migrant in British Columbia from the coast to the Rockies. Here at Okanagan about the center of the Province it outnumbers the Western Sandpiper one hundred to one. During the last fall migration I scrutinized every *Ereunetes* seen, several hundred in all, through a powerful glass, and shot a number of birds I was doubtful of, all were typical *pusillus* and I have only taken three or four Western Sandpipers east of the Cascades in all my collecting.

Limosa fedoa. MARBLED GODWIT.—One seen on August 7, 1910, constitutes the first record I have for Okanagan or for anywhere in the Province east of the coast.

Dendragapus richardsoni. RICHARDSON'S GROUSE.—During the past few years I have shot a number of these grouse in the Selkirk and Rocky Mountains, and have been surprised at the darkness of their coloration, fully as dark as *fuliginosa*.

The shape and coloration of the tail feathers was in every instance the same as in typical *richardsoni*, and an adult male killed in the Rockies had the bare skin on the sides of the neck dull reddish and without any trace of gelatinous thickening, precisely as in all *richardsoni*. Adult males of the Sooty Grouse have the skin on sides of the neck tremendously thickened, of a deep yellow color, and with a velvety texture and wrinkled surface.

As in other Grouse this is inflated when the bird is "hooting." The hooting of the Sooty Grouse can be heard for miles, while that of Richardson's Grouse is usually inaudible at a distance of one hundred yards, though the single hoot, which all Indians say is made by the female bird, has the same volume of sound in both species.

Xenopicus albolarvatus. WHITE-HEADED WOODPECKER.—For twenty

years or more a bird in the Provincial Museum at Victoria has constituted the only record for this species for British Columbia. This is said to have been taken many years ago in Similkameen valley by Mr. R. U. Griffin, but has never had any label to my knowledge.

I am glad to be able to now record the capture of a fine adult female by Mr. James Munro near Okanagan Landing on December 20 last.

Selasphorus allenii. ALLEN'S HUMMINGBIRD.—I wish now to recall my former tentative record of this species in British Columbia. After examining a series of undoubted *allenii* in the Museum of Vertebrate Zoölogy at Berkeley, I have come to the conclusion that I have never seen this species in the Province.

Zonotrichia querula. HARRIS' SPARROW.—An adult taken by myself April 30, and a juvenile taken by Mr. James Munro December 1, both at Okanagan Landing constitute two fresh records for B. C. It is curious that five out of the six records for the Province were made in the winter months.

Ammodramus s. bimaculatus. WESTERN GRASSHOPPER SPARROW.—After a considerable interval during which I have lost sight of this little sparrow I was last year able to re-locate the species in the hills back of Okanagan Landing and took adult and young in first plumage as well as a nest with four eggs. They are rare now in the locality where I first found the species in 1898.

Melospiza c. rufina. SOOTY SONG SPARROW.—Although Okanagan is in the semi-arid belt its Song Sparrows seem to be closest to this subspecies. In my collection I have both breeding birds and others taken in midwinter which cannot be distinguished from specimens taken on Queen Charlotte Islands and at Quatsino Sound (N. W. coast of Vancouver Id.).

The lightest British Columbian skins I have in my series are from Chilliwack, but taken as a whole the Song Sparrows of B. C. are remarkably uniform, and for my part I would be very glad to see the subspecies *mornha* dropped altogether.—ALLAN BROOKS, Okanagan Landing, B. C.

Eastern Oregon Notes.—In 'The Auk' for April, 1911, was published a note extending the range of *Oreortyx*, to all intents, to the Idaho boundary, the exact limit being 15 miles west of the Snake river, at Vale, Oregon.

Since this article appeared further data on this species lead me to think that this partridge is gradually extending its range eastward.

They were found rather common and nesting 15 miles above Vale along Bully Creek, a tributary of the Malheur river, also they were reported rather common at Skull Springs some 50 miles southwest of Vale. A cock of young was seen at Willow Creek a few miles above Ironside at the base of the Burnt River Mts.

Reports of the presence of the species have been received from several of the tributaries of the Malheur River proving that the bird is more or less generally distributed over a considerable extent of the eastern part of the state.

Following a rumor that the "California Quail" had been introduced I made inquiry of several of the settlers but found nothing to confirm such report.

The Partridge seems first to have appeared on Upper Willow Creek about 10 or 12 years ago and gradually became somewhat common. The hard winter of 1905-06, drove many flocks to the barnyards for food, where it would seem they met with almost universal destruction at the hands of settlers.

For several years they were not seen at all, but are again becoming somewhat common. No specimens have been examined, I am therefore unable to state how the species compares with those from the Cascades and Coast Mts.

The past May a small colony of two or three pairs of Bobolinks were found nesting in a meadow at Ironside, the first record I think for the state, and extending the known range of the species considerably to the westward.—A. W. ANTHONY, *Portland, Ore.*

Additions to Birds of Kerrville, Texas.—In my paper on the Birds of Kerrville, published in 'The Auk' 1911, pp. 200-219, I accidentally omitted the following species.

Charitonetta albeola. BUFFLE-HEAD.—Occasional on the Guadalupe river. A female was shot last December in the neighborhood of Kerrville.

Bartramia longicauda. UPLAND PLOVER.—Formerly very numerous during migration in the more open parts of the country, but rapidly becoming scarcer.

Aquila chrysaëtos. GOLDEN EAGLE.—A young bird taken from a nest near the head waters of the Guadalupe, was kept for several years as a pet in a saloon at Kerrville. Have seen the bird two or three times on Turtle Creek. One was shot near the head of the Guadalupe river some time during last winter and the stuffed skin is in Kerrville.

Haliaëetus l. leucocephalus. BALD EAGLE.—Formerly not uncommon and used to breed on bluffs along the Guadalupe, Frio and Medina rivers. Both of these Eagles are occasionally troublesome to the ranch owners, killing young lambs and kids.

Last year I also added two species to my list of birds of the neighborhood of Kerrville.

Pelecanus erythrorhynchos. WHITE PELICAN.—On April 23, a flock of about eighty were seen along the river about three miles from Kerrville, and one of them was killed and I saw the remains.

Wilsonia pusilla pileolata. PILEOLATED WARBLER.—One male at the ranch on Turtle Creek May 11, 1911.—HOWARD LACEY, *Kerrville, Texas.*

Recent Records from the Valley of the Lower Rio Grande.—Two examples of the Yellow-crowned Night Heron (*Nyctanassa violacea*) ♀ Jan.

8, and ♂ Jan. 19, 1912, shot at a point about seven miles up the river from Brownsville, establishes this species as a resident. Of the nine or ten forms of Herons ranging into the Lower Valley, it is the most thinly distributed.

An immature Golden Eagle (*Aquila chrysaëtos*) sex unknown, was shot near San Benito, Tex., 19 miles N. W. from Brownsville, early in January, 1912, by H. N. Prentiss. It was mounted and is now on exhibition at a drugstore in Brownsville, labeled as *Mexican Eagle*. The nearest locality known to me where this species occurs as a resident, is in the mountains, some distance south of Monterey, Mexico, approximately 200 miles distant.

On Jan. 4, 1912, I secured near Brownsville an adult female Long-eared Owl (*Asio wilsonianus*) my first record here.

Several years ago (Nov. 1909), I felt certain I had espied a Green-tailed Towhee (*Oreospiza chlorura*) on the ground in the dense chaparral. Now I feel sure that my identification was correct, for on Jan. 7, 1912, I collected an adult female near Brownsville. It may prove to be a more or less common winter visitant, for it is easy to confound it with the Texas Sparrow (*Arremonops rufivirgatus rufivirgatus*) in life. Its superficial appearance in life, and its habits, closely resemble those of the latter, although the Green-tailed Towhee is a much more confiding bird.

The Western Tanager (*Piranga ludoviciana*) is again wintering in small numbers. I secured an adult male on Dec. 12, 1911, for specific date. Last year it was noted through the winter months up to March. Several examples secured here during winter of 1910-11 are in the collection of Dr. J. Dwight, Jr.—AUSTIN PAUL SMITH, *Brownsville, Texas*.

The Names "Purple Finch," "Mavis," and "Highole."—In my article on The Current English Names of North American Birds ('The Auk,' Vol. XXVI, Oct. 1909, p. 358) I referred to the name "Purple" as applied to *Carpodacus purpureus* as "a monumental witness of an inability to properly discriminate either between two very different shades of color or in the use of the right word." The species in question appears under this name in Catesby (Nat. Hist. of Carolina, Vol. I, p. 41). From the letter of a correspondent under date of May 1, 1911, I quote the following—"I copied some of your article and had it printed in a Worcester, Mass., paper—The Telegram, using your name and giving you the credit of it. In yesterday's paper a Webster, Mass., bird-lover takes exception to the statement that the Purple Finch is wrongly named as to color, saying that it is the color of Tyrian purple, and evidently meaning that it was named for an ancient or classic color, and not the modern purple. Do you agree to this?"—I certainly do agree to it, and I wrote my correspondent thanking her for the correction. The gorgeous Tyrian purple, a dye obtained from certain gastropod molluscs (*Purpura* and *Murex*), was a symbol of wealth and rank among the early peoples of the eastern Mediterranean. In Murray (The Oxford Dictionary) under the word "purple" there is this definition—"Tyrian purple, which was actually crimson,

in the middle ages applied vaguely to many shades of red, now applied to mixture of red and blue in various proportions, usually containing also some black or white or both, approaching on the one side to crimson and on the other to violet." The Purple Finch was therefore appropriately named though approaching to crimson, while the Purple Grackle and the Purple Martin were equally well named though approaching to violet. My notion of "purple" evidently inclines to the violet.

In this letter my correspondent also says—"I used to hear the Wood Thrush called the 'red Mavis' at Framingham, Mass., where I spent my childhood." This is interesting as indicating a possible transit of the name with some early colonists and its local survival.

In Newton's "Dictionary of Birds" I find the following in a footnote under "Woodpecker"—"The number of English names, ancient and modern, by which these birds are known is very great, and even a bare list of them could not be here given. The Anglo-Saxon was *Higera* or *Higere*, and to this may plausibly be traced 'Hickwall,' nowadays used in some parts of the country, and the older 'Hickway,' corrupted first into 'High-haw,' and, after its original meaning was lost, into 'Hewhole,' which in North America has been still further corrupted into 'Highhole' and more recently into 'High-holder.'"—SPENCER TROTTER, Swarthmore College, Penn.

RECENT LITERATURE.

Ridgway's Birds of North and Middle America. Part V.¹—This long delayed volume forming Part V of Mr. Ridgway's great work appeared November 29, 1911, but was not generally distributed until more than a month later. It comprises the remaining Passerine families, Pteroptochidae (1 species), Formicariidae (66 species and subspecies), Furnariidae (29),

¹ The Birds of North and Middle America | a Descriptive Catalogue of the Higher Groups, Genera, Species, and Subspecies of Birds known to occur in North America, from the Arctic Lands to the Isthmus of Panama | the West Indies and other Islands of the Caribbean Sea, and the Galapagos Archipelago | by Robert Ridgway | Curator, Division of Birds.

Part V. | Family Pteroptochidae — The Tapaculos Family Dendrocolaptidae — The Woodhewers | Family Formicariidae — The Antbirds Family Trochilidae — The Humming Birds | Family Furnariidae — The Ovenbirds Family Micropodidae — The Swifts | Family Trogonidae — The Trogons | — | Washington: | Government Printing Office. | 1911. = Bulletin of the United States National Museum. No. 50. Part V. — 8vo. pp. i-xxiii + 1-859, pl. i-xxxiii.

and Dendrocolaptidæ (41) as well as the Trochilidæ (174), Micropodidæ (25) and Trogonidæ (23) of the Coraciiformes.

The style of treatment, details of synonymy and distribution, etc., are fully up to the high standard of the preceding volumes, while the mass of information relating to extralimital species contained in the keys and footnotes will be as heretofore most welcome to the student of South American birds. While this volume, covering as it does, the exceedingly difficult Tracheophone families and Hummingbirds is perhaps a more valuable contribution to ornithology than any of its predecessors, it contains but few species which range north of the Mexican boundary. In fact only twenty-three of the forms here treated are to be found in the A. O. U. Check-List and unfortunately for those who hoped that stability in nomenclature had been reached in the last edition of that work, Mr. Ridgway has found occasion to alter the names of seven of them. These proposed changes however are all questions of specific or subspecific rank or of the subdivision of genera — largely matters of personal opinion. The genus *Trogon* is subdivided and *T. ambiguus* is placed in *Trogonurus*; *Cypseloides* meets the same fate and our Black Swift appears as *Nephæcetes niger borealis*; *Uranomitra* is united with *Amizilis*; *Atthis morcomi* is regarded as a subspecies of *A. heloisa* and *Amizilis chalconota* as a subspecies of *A. yucatanensis* not of *A. cerviniventris* while the recognition of extra-limital subspecies of *A. tzacalt* and *Basilinna leucotis* requires the duplication of the specific name in the North American forms in order to conform to the method adopted by the new edition of the Check-List and by Mr. Ridgway.

Most of the new forms described during the progress of the work have been published elsewhere but the following date from the present volume; *Campylorhamphus trochilirostris major* Rdgw. p. 269, *Popelairia conversii salvini* Zeledon ms. p. 680, *Chrysotrogon ramonianus goeldii* Rdgw. p. 786 and two new genera *Chrysotrogon*, p. 784, and *Mearnsia*, p. 686.

While following the prevalent custom of adopting the original spelling of names Mr. Ridgway now and then finds himself unable to live up to the practice. For instance *guy* is emended to *guyi* and *Manikup* is rejected entirely as 'barbarous and cacophonous.' The recent wide-spread discussion as to the proper method of fixing generic types has led the author to leave some cases in abeyance. For instance he adopts *Archilochus* for *Trochilus* of authors but fails to substitute the latter for *Aithurus*; and he adopts the admittedly untenable name *Rhopoterpe* pending the fixing of the type of *Myrmornis*. These are trivial matters but it seems unfortunate that they could not have been settled in a work of such scope and authority.

It is welcome news to learn that good progress has been made with Part VI and we feel sure that ornithologists, the world over, while renewing their acknowledgment of indebtedness to Mr. Ridgway, will wish him every facility for the successful completion of the great task that he has undertaken.—W. S.

Sclater's Birds of Colorado.¹— This work forms a handsome uncut octavo volume of 576 pages, beautifully printed on heavy unsized paper, illustrated by sixteen excellent halftones from photographs of birds and nests by R. B. Rockwell, E. R. Warren and H. W. Nash; a contour map of Colorado and a frontispiece portrait of General William J. Palmer.

As he explains in the introduction Mr. Sclater was induced to prepare this volume by the often expressed desire of General Palmer but before it was ready for publication the General died and the work now appears as a personal tribute to him, the expenses of publication being defrayed by his sister-in-law, Mrs. Wm. L. Sclater and his brother-in-law, Mr. Chase Mellen. General Palmer's interest in nature and in the welfare of the Colorado College Museum of which Mr. Sclater was for some time director are thus fittingly memorialized.

The introduction contains a few paragraphs on the physical features of Colorado and nominal lists of the birds arranged according to character of occurrence and vertical distribution.

The main text consists of a key to the orders, keys to the families and genera, and keys to the species, diagnoses of the families and genera; and detailed treatment of the species. Under each species are given the A. O. U. number; references to the published Colorado records, the papers being listed in a bibliography at the end of the volume and referred to here by number; a full description; a paragraph on distribution, abundance and time of occurrence; and a short account of habits.

The Aiken collection of Colorado birds secured for the Colorado College Museum by General Palmer forms the basis of Mr. Sclater's work while he makes special acknowledgment to Chas. E. Aiken, E. R. Warren and Judge Junius Henderson for assistance and to the extensive note-books of the late Dennis Gale.

Mr. Sclater has apparently made an exhaustive study of the literature of Colorado ornithology and his work is a scholarly compilation. Authorities are quoted frequently for nearly all statements—so frequently indeed that one misses the freshness and life that characterize accounts of bird habits drawn more largely from personal experience, but Mr. Sclater makes no claim to original investigations and in the comparatively short period of his residence in Colorado he has certainly admirably mastered the subject which he here presents, the History of the Birds of Colorado.

The nomenclature and classification used are "almost without exception that of the recently published third edition of the A. O. U. Check-List" Whether *Pediocates*, *Architrochilus* (for *Archilochus*) and *Chondestes* gram-

¹ A History of the Birds of Colorado | By | William Lutley Sclater | M. A. (Oxon.), M. B. O. U., Hon. M. A. O. U. | (Lately Director of the Colorado College Museum.) | with Seventeen Plates and a Map. | Witherby & Co. | 326 High Holborn London | 1912. American agents Stechert & Co., West 20th St., N. Y. City. Price, \$5.

micus are intentional or accidental deviations we cannot say as they are used without comment.

It would have been better perhaps if the 'distributions' had been quoted more exactly from the A. O. U. list as some of them as they stand are rather misleading, the Western Grebe for instance is said to breed south to central Mexico. Some other remarks are rather startling as the statement that the Thrasher gets its name from "its habit of beating or thrashing the insects it catches until dead and deprived of wings and legs," while the 'double moult' as a character of the Sylviidae does not seem to apply to any of the Colorado species. By a curious *lapsus* Mr. D. D. Stone is constantly referred to as Mrs. Stone! These however do not detract from the general excellency of Mr. Scaler's volume which certainly provides Colorado ornithologists with an admirable basis for future work.—W. S.

Howell's Birds of Arkansas.¹—There are to-day but few states without adequate bird-lists. One of the most neglected in this respect has been Arkansas, but thanks to Mr. Howell we have now an admirable annotated catalogue of the 255 species and subspecies hitherto taken in the state or reported by competent observers.

The data upon which the report is based were largely collected by the author during a collecting trip in the spring and early summer of 1910, while additional information was gathered by other members and correspondents of the Biological Survey. The dearth of publications on the birds of Arkansas may be realized when we find that the author is able to quote only four titles in his bibliography and that prior to 1902 only 48 species had been reported from the state.

The distribution, time of occurrence and relative abundance of the various species are well discussed by Mr. Howell while the breeding ranges of several species are carefully mapped, those of the Whip-poor-will and Chuck-will's-widow proving to be almost exactly complementary. Several excellent halftone plates from drawings by Fuertes and photographs of characteristic scenery and a faunal map add to the attractiveness of the report.—W. S.

Burns on the Broad-winged Hawk.²—Mr. Burns has brought together in this monograph a vast amount of information. It is based upon "twenty-two years of personal observation and five years of close study of the literature." Those portions which are based upon the author's personal observations form the most valuable part of his work. Mr. Burns has

¹ Birds of Arkansas. By Arthur H. Howell, Assistant Biologist, Biological Survey. U. S. Department of Agriculture. Biological Survey Bulletin No. 38. 1911. pp. 1-100.

² A Monograph of the Broad-winged Hawk, *Buteo platypterus*, by Frank L. Burns with the co-operation of over one hundred American Ornithologists and the compilation of the World's Literature. Wilson Bulletin, XXIII, Nos. 3-4, Sept.-Dec., 1911, pp. 141-320.

for years made a special study of the Broad-wing and his accounts of its plumages, molt, flight, food, voice, action and disposition, both wild and in captivity, migration, mating, nidification, etc., form a valuable contribution to ornithological literature. The numerous quotations appended from the publications and manuscripts of others are of rather unequal value and trustworthiness.

In the treatment of the literature the desire to include mention of every scrap of published information regardless of its value has led to the accumulation of a mass of detailed data and titles that is bewildering in its extent and could have been reduced into well digested summaries which would have been of far more benefit to the reader. The lengthy bibliography too, gives scarcely a clue to the contents of the papers and fails to distinguish important titles from those containing mere casual mention of the subject of the monograph. A shorter list of the really valuable papers with a line or two of comment would have been of far greater service. These matters, however, in no way detract from the value of the main text.

A new race *Buteo platypterus cubanensis* from Cuba is described, but in such an obscure manner as readily to escape notice and with no designation of a type specimen. It is just such loose methods as this which have caused names to be overlooked and have led later to necessary changes in nomenclature and unfortunate complications.

A number of excellent halftones mainly from photographs by Mr. Alfred C. Redfield illustrate this valuable paper.—W. S.

Bent on Birds of the Aleutian Islands.—Mr. Arthur C. Bent accompanied by Messrs. Rollo H. Beck, Alexander Wetmore and Fred B. McKechnie spent the last three weeks of June, 1911, in a hurried survey of the islands of the Aleutian chain. Mr. Wetmore represented the Biological Survey of the U. S. Department of Agriculture and the expedition had in mind the securing of data for Mr. Bent's continuation of the Life Histories of North American Birds to be published by the Smithsonian Institution. The party travelled, through the courtesy of the Treasury Department, on the revenue cutter 'Tahoma' and cruised the entire length of the chain, landing on Atka, Kiska, Attu, Tanaga and Adak and the western end of Unalaska. The stops were necessarily very short, as the 'Tahoma' was due at Unalaska, July 1, and exploration was limited to the immediate vicinity of the harbors.

Mr. Bent's first publication¹ dealing with the results of the trip was a description of a new race of Ptarmigan, *Lagopus rupestris sanfordi*, from Tanaga. On each one of the more remote islands a peculiar form seems to have been differentiated. This one is said to resemble *L. r. chamberlaini* and *L. r. atkhensis* from Adak and Atka Islands to the eastward, but is lighter than either.

¹ A New Subspecies of Ptarmigan from the Aleutian Island. By A. C. Bent. Smithsonian Miscellaneous Collections, Vol. 56, No. 30. pp. 1-2. Jan. 6, 1912.

A second paper¹ gives a brief account of the trip, with annotated lists of sixty species found on the Aleutians and twenty-two noted in Bering Sea in July. Interesting accounts of the habits of many of the species are given and two Asiatic birds are recorded for the first time in North America—*Hypocentor rustica* the Rustic Bunting, of which two dead specimens were found and one more shot by Mr. Wetmore on Kiska Island and *Calliope calliope* the Ruby-throated Nightingale of which Mr. McKechnie shot one specimen on the same island. A specimen of *Aestrelata* nearest to *A. fisheri* was obtained at the entrance to Kiska Harbor.—W. S.

Nelson and Goldman on New Birds from Panama.—Mr. E. A. Goldman's collections while on the Smithsonian Biological Survey of Panama during the winter of 1910-11 have yielded several new species. He finds in studying the Kingfishers² which he obtained that two distinct races have heretofore been united under *Ceryle septentrionalis* Sharpe. The more northern one to which Sharpe's name is found to apply ranges the whole length of Mexico to southern Texas while the one which is here named *C. americana isthmica* ranges from Guatemala to Panama. In another paper³ Mr. E. W. Nelson describes two new forms of Nun Birds obtained by Mr. Goldman.—*Monasa fidelis* and *M. similis* each based on a single specimen.—W. S.

Mearns on New African Birds.—Dr. E. A. Mearns⁴ presents descriptions of seven new species of African Grass Warblers as a result of his study of the material obtained by the Smithsonian African Expedition. Four of these, *Cisticola subruficapilla aequatorialis*, *C. s. borea*, *C. strangei kaptensis*, and *C. hypoxantha reichenowi* were obtained by himself; two, *C. allenii* and *C. difficilis*, by Dr. Glover M. Allen who was collecting in British East Africa at the same time that Dr. Mearns was there, and one, *C. prinioides kilimensis* was obtained by Dr. W. L. Abbott in 1888.

In a later paper,⁵ *Helionympha raineyi* obtained on the Rainey African Expedition is described from the Telek River, Sotik District.—W. S.

¹ Notes on Birds Observed During a Brief Visit to the Aleutian Islands and Bering Sea in 1911. By A. C. Bent. Smithsonian Miscellaneous Collections, Vol. 56, No. 32, pp. 1-29, Feb. 12, 1912.

² A New Kingfisher from Panama. By E. A. Goldman. Smithsonian Miscellaneous Collections, Vol. 56, No. 27, pp. 1-2, December 1, 1911.

³ Descriptions of two New Species of Nun Birds from Panama. By E. W. Nelson. Smithsonian Miscellaneous Collections, Vol. 56, No. 37, pp. 1-2. February 16, 1912.

⁴ Descriptions of Seven New African Grass-warblers of the Genus *Cisticola*. By Edgar A. Mearns. Smithsonian Miscellaneous Collections, Vol. 56, No. 25, pp. 1-6, Nov. 23, 1911.

⁵ Description of a New Species of Sun Bird, *Helionympha raineyi*, from British East Africa. By Edgar A. Mearns. Smithsonian Miscellaneous Collections, Vol. 56, No. 28, p. 1, Nov. 28, 1911.

Herrick's Nests and Nest-Building in Birds.¹ -- Prof. Herrick's papers² unfortunately fail to reach a large number of ornithologists because of their being published in journals of animal behavior or experimental zoölogy which ornithologists too seldom consult. That they should be studied by every bird student cannot be too strongly emphasized. There is a great field in the study of the behavior of birds and unfortunately most observers are very poorly qualified to avail themselves of it, because of the prevalent tendency to judge the actions of birds as we would those of human beings and endow the authors with the same qualities that we ourselves possess. Prof. Herrick however, approaches the subject from the unprejudiced attitude of the scientific investigator and limits his deductions strictly to what is warranted by the facts so that his method as well as the results of his studies deserve careful consideration.

The present paper consists of a mass of valuable data arranged under the headings: Literature of Birds' Nests, Function of the Nest and the Problem of Protection, Classification of Birds' Nests on the basis of Behavior, Analysis of Increment Nests, Variation of Nests, Nidification, Intelligence in Nest-Building and Origin of the Instincts of Incubation and Nidification in Birds.

In this connection we can only quote some of the writer's conclusions while we recommend to all, the careful study of his papers in detail.

"Instinct alone," says Prof. Herrick, "furnishes the building impulse and in spite of many fluctuations due to experience, disturbance, or any influence of environment, holds the builders wonderfully true to their ancestral types" (p. 163).

"The proof of instinct in the nest-building activities of birds lies in the stereotyped behavior of the builders at work, as well as in the stereotyped character of the nests of different species when they are viewed in the proper light....On the score of behavior alone the evidence is now conclusive that birds do not build their nests from imitation or experience: they require no visible standards, plan, or copy but without hesitation....go straight to work and finish their task" (p. 163).

"Nest-building is one of a series of complex and correlated instincts pertaining to the reproductive cycle of birds,....[i. e. migration, mating, nest-building, egg-laying, care of the young, etc.] these serial instincts do not invariably proceed in due order and harmony....The cycle may be normally repeated more than once in the season, and when begun it may be brought to a sudden close not alone through accident or fear, but by the rise of other instincts or by any disturbance which affects the usual

¹ Nests and Nest-Building in Birds: in Three Parts. By Francis H. Herrick, *Journal of Animal Behavior*. Part I. May-June, 1911, pp. 159-192; Part II. July-August, 1911, pp. 244-277; Part III, September-October, 1911, pp. 336-373.

² Cf. also. Life and Behavior of the Cuckoo. *Journal of Experimental Zoölogy*. Sept. 1910, pp. 169-233, and Instinct and Intelligence in Birds. *Popular Science Monthly*, June, July and August, 1910.

rhythms. To such causes are due some of the most extraordinary phenomena of nests and nest life, such as the 'cuckoo instinct,' double, compound, or superimposed nests, the desertion of the last young, etc." (p. 336).

While criticising most of the literature of nest-building Prof. Herrick also points out the difficulties with which students of the subject have to contend — especially the necessity for continuous observation for hours and even days. "In spite of such drawbacks, however, it would be difficult to name a field in the province of behavior where the right kind of study promises more interesting results the world over, and where some of the phenomena to be witnessed close to your door, may be as worthy of record as anything observed in the forests of Brazil or of Africa." —W. S.

Beebe and Crandall on The Undescribed Juvenal Plumage of the Yucatan Jay.¹ — The plumages and molt of specimens of *Cissilopha yucatanica* living in the New York Zoological Park, are here described. When received they were in full juvenal plumage with the entire head and underparts white. This changed at the post-juvenal molt to the usual black, and subsequently the white tipped rectrices were replaced by those of uniform blue while the mandibles and eye ring eventually became black. The yellow bill is thus a character of immaturity and not sexual, as has sometimes been supposed. The early white breasted plumage in this species was quite unexpected.— W. S.

Henshaw's Report of the Chief of the Biological Survey for 1911.² — The important work of this branch of the U. S. Department of Agriculture in its efforts to protect the useful birds and game of the country and to check the depredations of noxious species, is too well known to require detailed notice in this connection, but anyone who reads Mr. Henshaw's interesting report will be astonished at the varied fields in which the activities of the Survey are carried on, and the benefits that they render to the Agricultural and other interests of the United States. Special ornithological investigations of the year have dealt with the Birds of Arkansas, the Food of Woodpeckers, the Food of Wild Waterfowl, while field work has been prosecuted in Alabama, Idaho, Arkansas, Kentucky, Montana, Tennessee, Wyoming and Virginia.— W. S.

Townsend's Captain Cartwright and his Labrador Journal.³ — Dr. Charles W. Townsend already well known for his writings on the

¹ The Undescribed Juvenal Plumage of the Yucatan Jay. By C. William Beebe and Lee S. Crandall, *Zoologica, Scientific Contributions of the New York Zoological Society*. Vol. I, No. 7, pp. 153-156, with colored plate, December 5, 1911.

² Report of the Chief of the Bureau of Biological Survey for 1911. By Henry W. Henshaw. *Annual Reports of the Department of Agriculture* 1911, pp. 1-20.

³ Captain Cartwright | and his | Labrador Journal | edited by | Charles Wendell Townsend, M. D. | Author of "Along the Labrador Coast." "A Labrador | Spring," "The Birds of Essex County" and joint | author of "Birds of Labrador | with an Introduction by | Dr. Wilfred T. Grenfell | Illustrations from Old Engravings. Photographs, | and a Map. | vignette | Boston | Dana Estes & Company | Publishers | 1911. Svo., pp. i-xxxiii + 1-385.

natural history of Labrador, has edited a reprint of the journal of Captain George Cartwright the famous explorer of this interesting but inhospitable coast. The original edition of the journal published in 1792 is a very scarce work and is inaccessible to most readers, so that Dr. Townsend's reprint is exceedingly welcome, placing at our disposal a vast amount of accurate and interesting information concerning Labrador and its natural history, one hundred and thirty years ago. The text is preserved without change except for the omission of "unimportant details and the mass of repetition," while in foot-notes the editor has given us the current technical names of the animals and plants which are referred to and as a foreword has furnished an entertaining biographical sketch of Captain Cartwright.

Most striking among the numerous allusions to birds are the references to the Great Auk or 'Penguin' the most extended of which treats of its threatened extermination on Funk Island, where in 1785 the inhabitants of Fogo went with their boats for birds and eggs. "They lay their gang-boards from the gunwale of the boat to the rocks, and then drive as many penguins on board, as she will hold.... It has been customary of late years, for several crews of men to live all the summer on that island, for the sole purpose of killing birds for the sake of their feathers, the destruction which they have made is incredible. If a stop is not soon put to that practice, the whole breed will be diminished to almost nothing, particularly the penguins: for this is now the only island they have left to breed upon."

Captain Cartwright's respect for accuracy in describing the habits of birds and mammals is conspicuous, the more so because it is unusual in explorers of his time, and this trait as well as his sense of humor are well shown in his extended account of the Beaver which he begins as follows: "I tremble at seeing myself under the necessity of contradicting that celebrated natural historian Compt de Buffon; yet I must take the liberty to do it. He says, 'A beaver has a scaly tail, because he eats fish.' I wonder much that Monsieur Buffon had not one himself for the same reason; for I am sure that he has eaten a great deal more fish, than all the beavers in the world put together."

All naturalists especially ornithologists and mammalogists will find this volume exceedingly interesting reading and a valuable work of reference.—W. S.

Taylor on Birds of Northern Humboldt County, Nevada.—In an interesting report¹ Mr. Walter P. Taylor describes a field trip made by himself and Mr. Charles H. Richardson, Jr. in the Pine Forest Mountain region of Nevada May 10-August 10, 1909.

¹ Field Notes on Amphibians, Reptiles and Birds of Northern Humboldt County, Nevada: with a discussion of some of the Faunal Features of the Region. By Walter P. Taylor. University of California Publications in Zoölogy, Vol. VII, No. 10, pp. 319-436. February 14, 1912.

Careful descriptions of the localities visited are given, with lists of the more conspicuous plants, while the life zones and their characteristic species of vertebrates are thoroughly discussed. The annotated list of birds numbers 103 species, and considerable space is allotted to accounts of the habits of those which are most abundant and characteristic. To quote the author, the attempt has been made to place emphasis upon the non-morphological or psychological characters of the species which are of late attracting more and more attention in zoological field work.

In addition to the birds, the reptiles and amphibians of the region are treated in this paper, the mammals having formed the subject of a previous contribution. Taken together they form a comprehensive biological survey of this interesting portion of Nevada, with much valuable information upon the life histories of the birds.—W. S.

Swarth, on A Collection of Birds from Vancouver Island.¹—An expedition was organized and financed by Miss Annie M. Alexander in 1910 in the interests of the University of California for the purpose of collecting the higher vertebrates of Vancouver Island. Miss Alexander, Miss Louise Kellogg, Mr. Harry S. Swarth and Mr. E. Despard made up the party and Mr. Swarth here presents us with a detailed account of the localities visited and a discussion of the distribution and relationship of the birds and mammals, the former comprising 111 species.

Several Pine Grosbeaks were observed on July 15 and a male in juvenal plumage was secured showing pretty conclusively that a form of this bird which Mr. Swarth refers provisionally to *Pinicola enucleator flammula* breeds on the island.

The extensive material obtained made possible a careful study of the affinities of the Vancouver representatives of several species which has led to interesting results. The Savannah Sparrow is found to be 'widely different' from *Passerculus s. alaudinus* and 'practically indistinguishable' from *P. s. savanna* of eastern North America. The Nighthawk too, is the eastern form *Chordeiles v. virginianus* and the Crossbill *Loxia curvirostra minor*, while the Junco is *J. h. oregonus*. In a large series of Song Sparrows from Vancouver and southern Alaska Mr. Swarth fails to "perceive the differences supposedly distinguishing *morphna* from *rufina*," while the Northwest Crow is treated as a subspecies of *C. brachyrhynchos*.

Certain forms not recognized in the A. O. U. Check-List are held to be valid as *Hirundo erythrogaster palmeri*, *Dendroica aestiva hooveri*, *Ceryle alcyon caurina*, and *Geothlypis trichas scripicola* while certain differences are noted in the vernacular names. A strong plea too is made for the restriction of the name *ruber* to the northern instead of the southern form of Red-breasted Sapsucker, which deserves careful consideration. Indeed

¹ Report on a Collection of Birds and Mammals from Vancouver Island. By Harry S. Swarth. University of California Publications in Zoology, Vol. 10, No. 1, pp. 1-124, pl. 1-4. February 13, 1912.

Mr. Swarth's paper is well worthy of detailed study and is a noteworthy contribution to west coast ornithology.—W. S.

Mathews' The Austral Avian Record.¹—This journal is issued at irregular intervals in connection with the Austral Avian Museum, Watford, Herts, England, by Mr. Gregory M. Mathews. It is intended to comprise such notes as require immediate attention in connection with the author's 'Birds of Australia' now in course of publication. Descriptions of new forms, notes on nomenclature and any other interesting matter relating to the Australian avifauna will be included. The present number comprises notes on Australian Cuckoos in which the nomenclature of all the forms is discussed, *Owenavis* and *Neochalcites* appear as new genera and ten new species and subspecies are proposed. A second note is a useful table of the dates of issue of the parts of Lear's 'Psittacidæ' and Müller's 'Verhandelingen over de Natuurlijke Geshiedenes Land-en Volkenkunde.' We do not think that Mr. Mathews' proposal to ignore Lesson's group or "race" names which have always been given recognition as genera will meet with the approval of ornithologists, nor do we consider that the authors of the International Code ever intended that article 2 should be interpreted as rejecting group names not explicitly designated by their proposers as genera or subgenera.—W. S.

Parkins' Record of Sales of the Great Auk and its Eggs.²—This is an interesting pamphlet containing a record of sales of specimens of the Great Auk or its eggs at public auction in Great Britain from 1806 to 1910. The early history of the specimens is included so far as it is known, and the character of this information will be seen by consulting Col. Thayer's article on p. 208 of this number of 'The Auk.' There are several interesting illustrations.—W. S.

Jacobs' The American Bird House Journal for 1912.³—Under this title Mr. J. Warren Jacobs proposes to issue an annual publication in continuation of his well known series of papers dealing with the history of

¹ The Austral Avian Record. A Scientific Journal devoted primarily to the Study of the Australian Avifauna. Vol. I, No. 1. Issued in connection with the Austral Avian Museum, Watford, Herts, England. Editor, Gregory M. Mathews. Price 1/6 Net. Witherby & Co., 326 High Holborn, London, W. C. January 2nd, 1912.

² The Great Auk. A Record of Sales of Birds and Eggs by Public Auction in Great Britain, 1806-1910. With Historical and Descriptive Notes and five Plates. (Extra Paper to Part 6, of Vol. I., Hastings and East Sussex Naturalist.) By Thomas Parkin, M. A., F. L. S., F. Z. S., (Member of the British Ornithologists' Union). Hastings, Burfield & Pennells Ltd. MCMXI. (Price two shillings.)

³ The American Bird House Journal for 1912, published by the Jacobs Bird House Co. Waynesburg Pa., pp. 95-141. Price, 25 cents.

the Purple Martin, though the scope will be broadened to include various other species of birds which nest in boxes. The present issue contains many excellent halftones of bird houses and Martins' nests together with much valuable information regarding the economic value of the Martin to fruit-growers and reports from Martin colonies in various parts of the country.—W. S.

Worcester on Newly Discovered Breeding Places of Philippine Sea Birds.—In this interesting paper¹ Dr. Worcester describes the Terns and Boobies found breeding upon various Philippine reefs and sandbars visited by him during the summer and autumn of 1910 and illustrates his account by a series of most interesting photographs.

The Terns observed were *Sterna borealis*, *furcata*, *melanuchen* and *gracilis* and *Anous stolidus*. On Bankoran Island were quantities of Boobies; the red-footed *Sula piscator* nesting in the trees, while the brown species *S. leucogastra* nested on the ground; nests of the latter being frequently plundered by the Red-footed Boobies which were seeking nesting material.

On Usong Island was a colony of *Sula cyanops* which like *Sterna gracilis* had not previously been recorded from the Philippines. A female of this Booby was found mated to a male *S. leucogastra* and three evident hybrids between the two were secured.²

On Cavilli Island great numbers of a new Tern, *Micranous worcesteri*, described in a recent paper³ by Mr. McGregor, were found nesting in the trees while the abundance of Frigate-birds, *Fregata aquila*, suggested that they also would be found breeding there at the proper season.—W. S.

Gunning and Roberts on South African Birds.⁴—Those interested in studying the various collections of African birds which have lately been brought to America will find this paper with its descriptions of twenty-two new species and subspecies, well worthy of consultation. Some details in the authors' method of treatment are however open to criticism. Instead of citing one type specimen, they cite two, a male and female and often from different localities; while the method of using Roman numerals for the months only adds to the possibilities of typographical errors, as seen on p. 111 where we find "31 IX. 08," surely an error unless September has an extra day in South Africa.—W. S.

¹ Newly Discovered Breeding Places of Philippine Sea Birds by Dean C. Worcester. The Philippine Journal of Science and General Biology, Ethnology and Anthropology, vol. VI, No. 4. August 1911. pp. 167-177, pl. I-viii.

² Hybridism among Boobies. By Dean C. Worcester, do. p. 179-181, pl. 1.

³ Record of a Puffinus new to Philippine Waters and Description of a New Species of Micranous. By Richard C. McGregor.

⁴ New Records and Descriptions of New Species of Birds in the Transvaal Museum Collection. By Dr. J. W. B. Gunning and Austin Roberts. Annals of the Transvaal Museum. July, 1911. pp. 109-118.

Hellmayr on the Ornithology of Western Colombia.¹—While the bird life of northern Colombia is becoming fairly well known there is still much to be learned regarding that of other parts of this interesting country especially the southern and central portions. The present paper is a welcome contribution covering as it does portions of the province of Choco, including the tropical San Juan valley and the Pacific slope of the Western Cordillera near its headwaters.

The basis of Mr. Hellmayr's paper is a collection of about 700 specimens obtained by Mr. Mervyn G. Palmer during 1908 and 1909, representing 201 forms. There are valuable critical notes and discussions of the details of distribution of the various species as well as a chapter of 'Conclusions' in which it is shown that many species of this region are common to N. W. Ecuador while a smaller number are Central American. Twenty-seven are listed as peculiar to Western Colombia. *Calospiza gyroloides bangsi* from Chiriquí, *C. g. catharinae* from S. E. Peru, *Arremon aurantiirostris occidentalis* from W. Colombia and *Myrmotherula surinamensis pacifica* from W. Colombia are described as new.—W. S.

Berlepsch's Revision of the Tanagers.²—This is a valuable work of reference for students of neotropical birds, especially since we have had no monographic review of the Tanagers since Dr. Sclater's volume XI of the Catalogue of Birds in the British Museum, published twenty-five years ago. Count von Berlepsch lists 555 forms using binomial names for 403 and trinomials for 152. The exact reference and type locality are given for all accepted names and synonyms, and a full list of localities is quoted under each species while type species are given for all generic names. Critical remarks on many of the species are given as an appendix to the main text, while matters of classification and nomenclature are dealt with in the introduction. The author disagrees with Ridgway's action in removing the Pitylinæ to the Fringillidæ and in placing *Hemispingus* with the Mnio-titidæ and prefers to keep them with the Tanagers, while *Iridophanes* he would exclude from the latter group keeping it with the Coerebidae. *Calyptophilus* he regards as a member of the Ampelidæ. In matters of nomenclature he finds himself unable to adopt such generally current forms as *Calospiza nigriviridis nigriviridis* preferring the binomial for the typical race, nor does he follow original misspellings of geographical names.—W. S.

Rivista Italiana di Ornitologia.³—Under this title appears the first

¹ A Contribution to the Ornithology of Western Colombia. By C. E. Hellmayr. Proceedings Zoological Society of London, 1911, pp. 1084-1213 (published December, 1911).

² Revision der Tanagriden. Von Hans Graf von Berlepsch. Sonderabdruck aus: Bericht über den V. Internationalen Ornithologen-Kongress. Berlin, 1910, pp. 1001-1161.

³ Rivista Italiana di Ornitologia. Edita da: Ethore Arrigoni degli Oddi, Filippo Cavazza, Francesco Chigi, Alessandro Chigi, Giacinto Marlorelli, Tommaso Salvadori. Anno 1. Num. 1-2, Luglio-Settembre, Ottobre-Decembre, MCMXI. Bologna, Novembre, 1911.

number of a quarterly journal of Italian ornithology edited by Count Arrigoni Degli Oddi and five others. It is a 'double number' with a colored plate of a hybrid pheasant, *Diardigallus diardi* \times *Gennaeus*, and is a well printed and very creditable publication.

A paper by T. Salvadori treats of the relationship of *Saxicola aurita* and *S. stapazina*. The editor and Dr. G. Damiani describe a collection of birds from the Tuscan Archipelago. The reversion to ancestral characters in a specimen of *Falco vespertinus* is described by F. Chigi and other papers are by A. Chigi on the migration of the Common Gull from the Baltic to Italy, by E. Balducci on the capture of *Pelecanus crispus* in Italy and by G. Martorelli on the hybrid pheasant already mentioned. Numerous short notes and extended reviews complete the number.—W. S.

'Cassinia.'¹—An epoch in the history of this publication is marked by the resignation from the editorship, of Mr. Witmer Stone, who had so admirably guided the course of the ten preceding volumes of the same name, as well as the four earlier volumes of the Proceedings of the Delaware Valley Ornithological Club. All that Dr. J. A. Allen has been to the Bulletin of the Nuttall Ornithological Club and 'The Auk,' Mr. Stone was to Cassinia and its forerunner. Mr. Robert Thomas Moore, the new editor, fully recognizes the valuable services of his predecessor, and promises to maintain as nearly as possible the high standard set. So far as the present volume is concerned this promise has been amply redeemed. Mr. Moore urges the detailed study of the life-histories of birds, as the best work to which local students of ornithology can now turn their hand. The character of his paper on the nesting habits of the Least Sandpiper, presented at the Philadelphia meeting of the American Ornithologists' Union, November, 1911, proved that he is fully qualified to lead such a movement.

The contents of the present volume of Cassinia are the following: Constantine S. Rafinesque as an Ornithologist, By Samuel N. Rhoads; The frontier of the Carolinian fauna in the lower Delaware valley, By Spencer Trotter; The Center Furnace swamp, By Richard C. Harlow; Recollections of the Passenger Pigeon, By Herman Behr; The summer of fire and bird adaptation, By Cornelius Weygandt; Down the Pocomoke, By George Spencer Morris; General notes; Report of the spring migration of 1911, Compiled by Witmer Stone; Abstract of the Proceedings of the Delaware Valley Ornithological Club, 1911; Club notes [Editorial]; Necrology; Bibliography of papers published in 1911, relating to the birds of Pennsylvania, New Jersey and Delaware; list of officers and members and index.

The report on migration shows that the accumulation of records by the Delaware valley club are beginning to tell. Generalizations are now possible, and as Mr. Stone remarks: "by the method of computing 'bulk arrival' we are now getting remarkably accurate results." —W. L. M.

¹ Cassinia. A bird annual. Proc. of the Del. Valley Ornithological Club of Philadelphia, No. XV, 1911, 80 pp., 3 pl., Feb. 1912.

The Ornithological Journals.—As many of the ornithological journals, especially those published in foreign countries, are seen by but a comparatively small proportion of the readers of 'The Auk,' it seems that a brief résumé of their contents would be a desirable addition to each installment of RECENT LITERATURE. In accordance with this idea, the titles of the more important papers, beginning with January 1, 1912, will be given, followed in some instances by a few words of comment. Purely local articles in foreign journals as well as minor notes, etc., will be omitted while matter relating directly or indirectly to North American ornithology or general bird-study will be given especial attention. In this way readers may learn of papers dealing with subjects of special interest to them of which they would otherwise fail to hear. This plan will not, of course, interfere with the more extended reviews under separate headings of important excerpts received from the authors, which will be continued as heretofore.

Bird Lore. Vol. XIV, No. 1. January–February, 1912.

My experience with Von Berlepsch Nesting-boxes. By F. H. Kennard.

A Glimpse into the Life History of the Turkey Vulture. By R. W. Williams.

A Myrtle Warbler Nest. By William Pepper.

Twelfth Christmas Bird Census — 217 lists!

Illustrations, Migrations, and Plumages of the Crossbill. In the series on North American Sparrows.

The White Egrets. By T. G. Pearson. Educational Leaflet No. 54, with two colored plates.

The Condor. Vol. XIV, No. 1. January–February, 1912.

The Shore Birds of Santa Barbara. By J. H. Bowles and A. B. Howell.—With interesting photographs of Phalaropes.

Through Tahoean Mountains. By M. S. Ray.

A Visit to Nootka Sound. By H. S. Swarth.

Some Birds of Southwestern Montana. By A. A. Saunders—Annotated list of 149 species.

Birds of a Mohave Desert Oasis. By Chester Lamb — 134 species found near Daggett, California.

The Ibis. IX Series. Vol. VI, No. 21. January, 1912.

On the Birds collected by Mr. Claude H. B. Grant at various Localities in South Africa. By W. L. Selater with Field Notes by the Collector (Concluded).

Notes on the Ornithology of Corsica, Part III. By Rev. Francis C. R. Jourdain.

On the Birds of Mauritius. By Capt. R. Meinertzhagen.—Fifteen of the native species are now protected by law.

On some newly described Birds of Paradise, and some Undescribed Eggs of the same Group. By Hon. Walter Rothschild.—*Pardigalla brevicauda* Rothschild & Hartert figured.

On the Eggs of certain Birds-of-Paradise. By W. R. Ogilvie-Grant.—

Refers to the wonderful aviaries of Mr. E. J. Brook at Hoddam Castle where there were living at one time twenty-three species of Paradise and Bower Birds and where two have nested.

Descriptions of two new Species and a new Genus of Australian Birds. By Alfred J. North—*Neositta mortoni*, *Alcyone ramsayi* and *Trichodere* nov. gen. for *Ptilotis cockerelli* Gould.

Field-Notes on a Collection of Birds from the Mediterranean. By Commander H. Lynes. With Systematic Notes by H. F. Witherby.—The nomenclature of this paper seems strangely out of place on the conservative pages of 'The Ibis.' Trinomials are used throughout but while the editors allow such names as *Emberiza calandra calandra* and *Chloris chloris aurantiiventris*, they take pains to explain in foot-notes that they are unable to permit such a name as *Petronia petronia petronia* and have stricken out one of the repetitions!

Under 'Letters and Notes.' Mr. Mathews makes another appeal to the B. O. U. for the rejection of Brissonian Genera and for the transference of *Saxicola* from the Wheatear to the Chats (*Pratincola*). In the latter case he seems to entirely overlook the fact that the International Code does not recognize type fixing by restriction except where a genus consists of but two species (opinion 6). The first actual designation of a type for *Saxicola* is by Gray, 1841, who designated *S. ananthe*.

Bulletin of the British Ornithologists' Club. No. CLXXV.

Hon. Walter Rothschild describes a new Cassowary, *Casuarius keysseri* and discusses the relationships of the thirty species and subspecies now known, of which by the way he has described exactly one half. There was a general exhibition and discussion of Capercaille, Black Grouse and Pheasants in which males were assuming female plumage and vice versa. Mr. Witherby regarded the abnormal feathers as not exactly like those of the opposite sex and suggested that the cause was probably not related to the sexual organs. Mr. Pyeract thought that "the assumption of female plumage by males was due to a lack of 'tone' or vitality at the time of moulting."

Journal für Ornithologie. LX. Heft. 1, January, 1912. Studies on the Avifauna of Emsland. Dr. Edwin Detmers.

The Distribution of the Genus *Emberiza*. Dr. H. Duncker. With maps showing lines of dispersal of the various groups of species.

The Zoologist. No. 847. January 15, 1912.

The Prehistoric Origin of the Common Fowl. By Fredk. J. Stubbs and A. J. Rowe.

The Emu. January, 1912. Vol. XI, Part 3.

Eleventh Session of the Royal Australasian Ornithologists' Union.

Bush Birds of New Zealand. By J. C. McLean. Part III.

Relative Dimensions of Red Blood Cells of Vertebrates, especially of Birds. By J. Burton Cleland and F. Harvey Johnston.

Avifauna of New South Wales Islands. By A. F. Basset Hull. Part II.

Bird-Life in the Riverina. By Capt. A. S. White.

British Birds. January 1, 1912. Vol. V, No. 8.

Dr. L. Bureau's work on the Partridge. By N. F. T.—A review in English of this recent volume which comprises probably the most detailed study of molt in live birds that has yet appeared.

The North American Peregrine in Lincolnshire and Leicestershire. By G. H. Eaton Haigh.

British Birds. February 1, 1912. Vol. V, No. 9.

Breeding and "Eclipse" Plumages of the Common Partridge. By W. R. Ogilvie-Grant.—A phase not hitherto recorded, perhaps analogous to one of the plumages of the Ptarmigan.

The Avicultural Magazine. Vol. III. No. 3. January, 1912.

A Roccolo in Italy by Hubert D. Astley.—An interesting account of the device for catching migrating birds.

The Blue Robin [!] *Sialia sialis*. By Catharine Currey.—An account of our Bluebird as a cage bird.

A Jay New to Aviculture, *Calocitta lidthii* Hubert D. Astley.—It is but a few years ago that this rare Loo Choo *Garrulus* was known only from Bonaparte's description. This is probably the first time that it has been placed in the genus *Calocitta*!

The Avicultural Magazine. Vol. III. No. 4. February, 1912.

Some Notes on the Secretary Bird. By Major Horsbrugh and W. H. St. Quentin.—Habits of wild and captive birds.

Notes on a Storm Petrel in Captivity. By C. B. Ticehurst.—The bird *Procellaria pelagica*, always stood on the entire tarsi, only rising on the toes when flapping the wings at the beginning of flight.

Publications Received.—**Beebe**, C. William and Crandall, Lee, S. The Undescribed Juvenile Plumage of the Yucatan Jay. Zoölogical Scientific Contributions of the New York Zoological Society, Vol. I, No. 7, 1911.

Bent, A. C. Notes on Birds Observed During a Brief Visit to the Aleutian Islands and Bering Sea in 1911. (Smithson. Misc. Coll. 56, No. 32, 1912.)

Berlepsch, Hans Graf von. Beschreibung neuer Vogelformerans dem Gebiete des unteren Amazonas. (Ornith. Monatsberichte Februarheft 1912, pp. 17-21.)

Berlepsch, Hans Graf von. Revision der Tanagriden. (Bericht über den V. Internationalen Ornithologen-Kongress, Berlin, 1910, pp. 1001-1161.)

Campbell, A. J. A History of Australian Ornithological Research. (Emu, XI, Pt. 3, 1912, pp. 153-157.)

Goldman, E. A. A New Kingfisher from Panama. (Smithson. Misc. Coll. 56, No. 27, 1911.)

Hellmayr, C. E. Description de Trois Nouvelles Espèces d'Oiseaux des Familles de Dendrocolaptides et Formicariides. (Rev. Francaise d'Orn. Nos. 24 et 24 bis 1911.)

Hellmayr, C. E. A Contribution to the Ornithology of Western Columbia. (Proc. Zool. Soc. London, 1911, pp. 1084-1213.)

Hellmayr, C. E. Ueber neue und seltene Vögel aus Südperu. (Verhandl. Ornith. Gesells. in Bayern XI, 1912, pp. 159-163.)

Hellmayr, C. E. und Seilern, Josef Graf von. Beschreibung eines neuen Dendrocopidae aus Venezuela. (Verhandl. Ornith. Gesells. in Bayern XI, 1912, pp. 157-158.)

Henshaw, H. W. Report of the Chief of the Bureau of Biological Survey for 1911. (Ann. Rep. U. S. Dept. Agr.)

Mearns, E. A. Description of Seven New African Grass-Warbblers of the genus *Cisticola*. (Smithson. Misc. Coll., 56, No. 25, 1911.)

Mearns, E. A. Description of a New Species of Sunbird, *Helionympa raineyi*, from British East Africa. (Smithson. Misc. Coll. 56, No. 28, 1911.)

Nelson, E. W. Description of two new species of Nun Birds from Panama. (Smithson. Misc. Coll., 56, No. 37, 1912.)

Parkin, Thomas. The Great Auk. A Record of Sales of Birds and Eggs by Public Auction in Great Britain 1806-1910. (Hastings and East Sussex Naturalist Extra Paper to Pt. 6, Vol. I). Hastings, Burfield & Pennells Ltd. 1911. Price, 2 shillings.

Pycraft, W. P. A History of Birds. Methuen & Co. London. 1910. 10 s. 6 d. net.

Ridgway, Robert. The Birds of North and Middle America. Part V., Bull. 50, U. S. Nat. Mus., 1911.

Sclater, W. L. A History of the Birds of Colorado. Witherby & Co. London. 1912. \$5.

Shufeldt, R. W. American Wild Fowl I-II. (Amateur Sportsman, Jan.-Feb., 1912.)

Shufeldt, R. W. Study of Birds' Eggs. (Emu, XI, Pt. 3, 1912.)

Swarth, H. S. Report on a Collection of Birds and Mammals from Vancouver Island. (Univ. of California Publ., Zoology, X, No. 1, pp. 1-124. Feb. 13, 1912.)

Taylor, W. P. Field Notes on Amphibian, Reptiles and Birds of Northern Humboldt County, Nevada. (Univ. of California Publ., Zoology, VII, No. 10, pp. 319-436, Feb. 14, 1912.)

Townsend, Charles W. Captain Cartwright and his Labrador Journals. Boston, Dana Estes & Co., 8vo. 1911.

Wallace, John H., Jr. Alabama Bird Day Book. Issued by the Department of Game and Fish. 1912.

Abstract Proc. Zool. Soc. London, No. 104, 1912.

Animals, Friend XVIII, No. 4, January, 1912.

Austral Avian Record, I, No. 1.

Avicultural Magazine, (3) III, Nos. 3-5, Jan.-Mar., 1912.

Bird-Lore, XIV, No. 1, Jan.-Feb., 1912.

British Birds, V. No. 8-10, Jan.-Mar., 1912.

Bulletin Charleston Museum VIII, No. 3, Mar., 1912.

Cassinia, No. XV, 1911 (Mar., 1912).

Condor, The, XIV, No. 1, Jan.-Feb., 1912.
Emu, The, XI, Part 3, Jan., 1912.
Forest and Stream, LXXVIII, Nos. 1-12, 1912.
Ibis, The (9) VI, No. 21, Jan., 1912.
Journal Maine Orn. Soc., XIII, No. 4, Dec., 1911.
Messager Ornithologique, No. 1, 1912.
Oologist, The, XXIX, Nos. 1-3, Jan.-Mar., 1912.
Ornithologische Monatsschrift, XXXVI, No. 12, December, 1911.
Philippine Journal of Science, VI, Nos. 4-5, Aug.-Nov., 1911.
Proceedings Acad. Nat. Sci., Philadelphia, LXIII, Pt. 3, 1911.
Records of the Australian Museum, IX, No. 2, Oct., 1911.
Revista Italiana di Ornitologia, I, 1-2, July-Dec., 1911 (Nov., 1911).
Science, N. S., XXXV, Nos. 888-899, 1912.
Wilson Bulletin, XXIV, No. 5, Mar., 1912.
Zoölogist, The (4) XVI, No. 181, Jan., 1912.

CORRESPONDENCE.

The Photography of Birds' Eggs.

TO THE EDITOR OF 'THE AUK':—

Dear Sir:—A number of years ago I published several articles on my methods of photographing the eggs of birds, and at that time the subject was attracting considerable attention. Mr. Henry E. Dresser, then engaged upon his Eggs of the Birds of Europe, sent me several of his colored plates of eggs for my criticism with respect to the selection of backgrounds. They were the most beautiful things of the kind I had ever seen, and, in fact, I had one or two of them framed for my study. Besides being far ahead of my own achievements in that line, they were elegantly colored and true to nature. Mr. Dresser never wrote me how he made his photographs of birds' eggs, which latter, as we know, stand among the most difficult of all small, inanimate objects representing biological material that the naturalist seeks to obtain photographs of for illustrative purposes. Some ten or fifteen years ago, when I first undertook to photograph birds' eggs, the success I met with was only partial. In those days I used to stick the blown eggs on to a vertical pane of glass with a piece of soft wax. Care was taken that the glass was free from all blemishes (air-bubbles, etc.), and the eggs could be arranged as desired and as they were to appear in the photograph for reproduction and publication. A background of any selected kind was firmly fixed at a proper distance behind the glass and in a plane parallel to it. In setting up the camera to make the exposures, it was done so that the visual axis or line passing through the lens was perpendicular to these planes, and at a middle point of the egg or eggs to be photographed.

There are several serious objections to this method, which need not be touched upon here, and I have abandoned it long ago.

No one will question the value of perfect photographs of birds' eggs to the general ornithologist, and, if possible, it is highly desirable that he should be able to make them for himself. Therefore no apology appears to be necessary for pointing out here the best way to go about it.

In the last issue of *The Emu* (Jan., 1912), the official publication of the Royal Australian Ornithologists' Union, I published an article on a "Study of Birds' Eggs," which is illustrated by three plates reproduced from recent photographs of mine of birds' eggs from Australia and elsewhere. Mr. Campbell, the editor of *The Emu*, speaks well of the execution of these photographs, and, as I have received many inquiries as to the technique of this class of work, the object of the present letter is to give some of my experiences in regard to it.

To obtain perfect photographs of birds' eggs, natural size, one must use the very best of photographic material, and a camera and lens suitable for the purpose. This is a part of the subject which space cannot here be expended upon, and I take it the photographer is an experienced one, for no amateur should commence by selecting birds' eggs as his subjects, for, with his untrained eye, he will never get them.

By the method here to be described the eggs may be blown or unblown when photographed; or they may be of any size, from an egg of a hummingbird to one of an ostrich; or of any color, and these last may be handled by the use of color screens and isochromatic plates.

When intended for reproduction, it is best to bring them up on the ground-glass somewhat above natural size, so the half-toners can sharpen them by reduction to the size required, be that smaller or the same as the specimen.

It is surprising how many things one must bear in mind when one undertakes to photograph a single, medium-sized egg of a bird; and the difficulties are markedly increased when the attempt is made to photograph eggs of different sizes, perhaps a dozen together, all on the same negative. (*The Emu*, Jan., '12, Plate XX).

Now we will take an example, and say a photograph (in which the eggs are to be somewhat larger than the specimens) of three eggs of the Murre (*Uria t. troile*) is desired, and all three on the same negative. Mr. Edward J. Court, an Associate of A. O. U., kindly loaned me for the purpose, from his superb collection, the very examples I needed. Here a 5×8 camera is required, and a 5×7 would not have answered. Any high-class lens will do that will not distort the object when made either natural size or somewhat above it. Eggs taken without shadows are usually flat and unattractive. Let the light come from three or more sources, and then control it so as to obtain shadows which will be soft, diffuse, and enhance the beauty of the result. Have the aspect of each egg you desire to show in the resulting negative toward the camera, and, what's more, so that it will show as you want it when photographed.

Where the light is exactly right in your studio, and will remain so sufficiently long for your purpose, spread on the floor your background, which may be a square yard of black velvet, or white blotting-paper, or other material according to the kind of eggs you are to photograph and the result you desire to obtain. Here I used white blotting-paper, a large-sized sheet. Again, governed by the light, place on this background two convenient supports of precisely the same height. Their tops must be smooth, exactly in the horizontal plane, and broad enough to support a perfect pane of glass (very thin, 14 \times 20), so that it, too, is horizontal, and will remain perfectly steady in its place. Arrange your vertical camera above this contrivance, so that the imaginary visual line is perpendicular to the floor, and passes through the center of the pane of glass. This latter rests on the supports near the margins of the short sides, thus fulfilling the required conditions as given above.

Best try a single egg first, so as to study the focus, the reflections, the light and the shadows, and numerous other points before placing all three eggs on the upper surface of the glass where they are eventually to rest to be photographed.

Everything depends upon keeping the egg in the exact position you want it during the exposure. It must rest upon the glass in such a way that you can move it at will in any direction, and have it stay there. This I accomplish by placing beneath it a little pile of wheat flour,— just enough so it will not be seen in the resulting negative. This keeps the egg off the glass, thus running no risk of breakage or soiling, permitting the specimen to be instantly turned in *any direction*. In fact, by this simple scheme we can study the egg from all points of view, and have it in the exact position to make a scientific photograph of it. Moreover, when the three eggs are on the glass, resting upon their three little piles of flour, we can in a moment get their axes parallel; study the shadows; rotate them to the sides we wish to photograph, and so on. In the case of eggs the shape of Murres' eggs (see Plate), we must make sure that the apices do not dip down or up, so as to *shorten* any egg in the picture we get. In all cases, the long axis of the egg must be parallel to the plane of the glass upon which it rests, and likewise parallel to the egg or eggs on either side of it, or, in some instances, in the same line with axes of eggs before or behind it. Where eggs of various sizes are taken on the same plate, I support the smaller ones on appropriate stalks of soft wax, so they may be turned in any direction.

These are some of the main points in the photography of eggs to be looked after, and experience and observation must do the rest, as space here will not admit of pursuing the subject any further.

Yours very truly,

R. W. SHUFELDT.

A History of the Birds of Colorado.

TO THE EDITOR OF 'THE AUK':—

Dear Sir:—Mr. Sclater's splendid work, *A History of the Birds of Colorado*, eagerly expected for some time, is now at hand, and certainly fulfills all expectations. It is well-printed with good type on un-glazed paper, hence easily readable and the arrangement is all that could be desired. In going through the pages it seems to me that the references are as nearly complete as could be expected, but in such a work some omissions are almost inevitable. The most noticeable one which attracts my attention is Felger's "Birds and Mammals of Northwestern Colorado," which is listed in the bibliography, but all or nearly all of his records therein are omitted from the text, including a few rather important ones. This is not offered by way of criticism, but merely to call the attention of ornithologists to the fact that there are uncited records of some of the species. With such an excellent list as a foundation, this would be a good time for all who have worked in this region to go through the book in a search for the rarer species or species of limited distribution in the state, and publish in 'The Auk' or Condor any really important records they may have which would add essentially to our knowledge of the distribution of the less known species. Of course all ornithologists will not agree with all that the author of this work says, but in most cases when he departs from the beaten path he is perfectly fair with the reader. He does not directly admit the validity of the Red-wing subspecies *Agelaius phoeniceus fortis*, except by including it in the key to the genus, but he fairly states the situation. Felger's record of *A. p. neutralis* for Rifle Gap, Meeker, Buford, etc., based upon Oberholser's identification, may be noted here. The omission of the eastern form of Robin will doubtless be a surprise to many.

Among Felger's published records for northwestern Colorado which might have been added to the list with advantage are the following: Snowy Egret in White River Valley; Sandhill Crane nesting at Buford, etc.; Virginia Rail at Meeker (Sclater says he has "not heard of it on the western slopes"); Sora at Meeker; Western Solitary Sandpiper, three August records for White River Valley; Upland Plover, Marvine Lodge, August 28; Short-eared Owl at Axial in August (Sclater considers it almost altogether a winter bird in Colorado); Road Runner near Meeker, credited to Mr. Ball (Sclater gives Denver as the northernmost record); White-throated Swift nesting near Axial; Bobolink, young birds near Meeker in August, indicating a nesting record; Purple Martin in Lost Park, September 1; Canyon Wren at Axial, one of the most northerly records of the species.

Bragg's summer record of the Gray-headed Junco at Boulder, altitude 5,700 feet, July 4, 1904, should be added to the list, as it indicates a probable breeding record much below the usual elevation. The Snowy Egret being rare, it may be well to add the record of two taken near Boulder in

1908, one of which is in the University cabinet.¹ The same collection includes a Black-throated Blue Warbler, taken in Boulder Canyon, at 6,000 feet, Oct. 16, 1911.

The bringing together of these records, even with Cooke's bulletins as a basis, and the preparation of new descriptions and keys, has been a great undertaking, but the work has been well done and deserves the appreciation of ornithologists, both professional and amateur.

JUNIUS HENDERSON.

University of Colorado.

Life of Sir William Jardine.

THE EDITOR OF 'THE AUK.'

Dear Sir:—For some time past I have been engaged in writing the "Life of Sir William Jardine," the naturalist.

I wonder if you would be so good as to insert this letter in your magazine, in the hope that, if it caught the eye of any one who might be able to assist me, either by letters from Sir William Jardine, or from personal acquaintance, they might communicate with me.

Yours truly,

HUGH S. GLADSTONE.

Capenoch, Thornhill,
Dumfriesshire, England.

March 12, 1912.

¹ Colorado College, an excellent denominational institution at Colorado Springs is frequently confused with the University of Colorado, a state institution located at Boulder. References to the collections and records of both institutions occur in Mr. Sclater's book.—J. H.

NOTES AND NEWS.

ONLY those who have had occasion to pursue their studies in the Ornithological rooms of the United States National Museum have realized what an enormous work Dr. Charles W. Richmond has accomplished in his spare moments during the past fifteen years, in preparing a card catalogue of the described species of birds. The student of North American birds with numerous comprehensive works and the A. O. U. Check-List at his elbow, has no conception of the difficulties that confront one who is studying the birds of South America, the East Indies, or Africa. Even with the literature accessible,— and there are few libraries in America that approach completeness, there are numerous questions of date of publication, first place of publication etc., which require much expenditure of valuable time for their solution and which are being worked out over and over again by different individuals, not always, unfortunately, with uniform results. Dr. Richmond's cards contain the actual date of publication, the original reference and spelling, type locality and location of the type specimen when indicated, all verified by his personal investigations. The periodicals and single volumes have been studied page by page and many new names proposed years ago and hitherto overlooked have been brought to light.

Some 30,000 cards have been completed, together with about 10,000 additional cards containing fragmentary data supplementing earlier cards or referring to those not yet prepared. Dr. Richmond estimates that the catalogue is at least three-fifths completed.

From what has already been said the value of such a list, prepared as it is by a skilled ornithologist, and the amount of time that the student saves who has access to it, can perhaps be appreciated. The labor involved in its preparation probably no one but its author will ever appreciate!

With the completion of his task practically assured Dr. Richmond has in mind the possibility of having all the future cards printed in duplicate or rather in a limited number of sets according to the demand that there might be for them and at the same time to reprint those already completed, beginning with the rarer and less accessible publications, so that such institutions as cared to coöperate with him would in a few years possess a complete card catalogue of the described species of birds of the world.

The benefit that such an unselfish undertaking would prove to the ornithology of the future can hardly be estimated, and should Dr. Richmond seriously consider the project he should receive every assistance and support.

AS TO BIRD BANDING.

Berlin, Md.,
January 20th, 1912.

"The Auk,
New York City.

Gentlemen: —

One of my men has just come in from a country mill and tells me that he has killed a bird, the species of which he did not know or else would not tell me, with a leg band on it, which he brought to me. Same bears the number 6302.

Would you mind letting me know the species and particulars of this matter, using the enclosed stamped envelope?

Thanking you in advance for the courtesy of your reply, I beg to remain,
Yours very truly,

(Signed) CHAS. W. TINGLE."

The above communication established an exceedingly interesting bird banding record. On consulting card No. 6302 the following memoranda were found: "Species—Sialia sialis; Locality—Meriden, N. H.; Date—June 3, 1911; Banded by—Ernest Harold Baynes; Approximate age of bird—About two weeks. Remarks—Band placed on left leg. The bird was one of a family in an unpainted wooden box on the corner of an old shed. Five young in nest."

This, to be sure, is only an isolated record, but from it we learn that a young bluebird reared at Meriden, N. H., in June, 1911, was wintering at Berlin, Md., or at any rate was there on Jan. 20, 1912, and it has since been ascertained that the bird shot was one of a flock of several. In addition to getting a banding record, therefore, we obtain a sidelight on the manner in which bird life is being destroyed in certain sections of the country.

When the Linnaean Society of New York first undertook some months ago to push the work of the American Bird Banding Association, and the members of the Bird Banding Committee inaugurated a campaign to raise funds for that purpose, unexpected obstacles were met with. Letters of protest were received from some, setting forth the cruelties involved in such a practice as bird banding; while many refused to contribute because the Association had not yet shown sufficient results — forgetting that any project in its infancy must be nursed for a time on faith until a start can be made. Let it be understood that those striving to carry on the bird banding work are not desirous of opposing or antagonizing anyone. On the other hand they invite suggestions and sane criticisms from everyone. If the banding of any particular species, for instance, is discovered for any reason whatsoever to be detrimental, members of the association will be instructed to pass birds of that species by. One gentlemen has even been so far-sighted as to suggest that the bands on birds' legs might attract the

attention of gunners, who would shoot the creatures to satisfy curiosity. But most birds carry their tarsi well buried in the body feathers while flying and it is gratifying to know that of all the return records thus far received none have resulted from the band being seen while the bird was still at large. The discovery of the band has in each case been purely accidental and has taken place after the bird was collected and in the hand.

It may be of interest to some to learn that during the summer of 1910 Mr. H. F. Witherby of London, England, issued to his staff of bird banders over 12,000 bands, and of these over 7900 were actually placed on birds. Two of his workers banded over 2300 birds (representing 16 species) and including 1200 Black-headed gulls, 600 Common terns, 157 Swallows and 105 Lesser Black-backed gulls. Europeans, in fact, are, at present, far ahead of us in this matter of investigating the movements of birds by the aid of metal rings. Bird banding activities are being carried on not alone by Witherby & Co. of London, but by "Country Life" of the same place, the University of Aberdeen, Scotland, and at the following places on the Continent — Rossiten, Denmark; Leyden, Holland; Budapest, Hungary; and possibly elsewhere. If the thousands of bands used by these investigators each year impeded or inconvenienced the birds to any extent or caused many to die it would seem that some evidence in support of this fact would long ago have come to light. Nor must it be thought that only the larger birds in Europe have been banded, for during a single season in England alone over 3000 tits and other birds no larger than some of our warblers were tagged. It might not be untimely, therefore, if Americans were to divest themselves of the delusion that bird banding is fanciful and unpractical if not cruel and barbaric.

The American Bird Banding Association has succeeded in gathering enough funds to push ahead with the manufacturing for use during the coming season of a fair number of bands which are now being made. These bands may not come from the factory for several weeks, but should be ready for distribution well before the nestlings of everything but great horned owls are old enough to receive them. Members of the Association will receive notice when bands are available and then it will remain to be seen what the season of 1912 will bring forth.

HOWARD H. CLEAVES, *Secy -Treas.*,
Public Museum,
New Brighton, N. Y.

ON February 27, 1912, the American Museum of Natural History opened for public view another of the notable habitat groups for which its ornithological gallery is famous. This represents the birds of tropical eastern Mexico, and illustrates the influence of altitude on the distribution of life. The group includes such birds as the Amazon Parrot, Parakeet, Toucan, Motmot, Tropic, tropical Tanagers, Cuckoos, Orioles, etc., which are found in the dense tropical forest about the base of Mt. Orizaba while

the snow capped mountain itself represented in the background shows the temperate and boreal zones that one traverses in ascending to its peak (18,225 feet); the same transition that would be experienced in a journey of 3000 miles northward at sea level.

The group was prepared under the direction of Mr. Frank M. Chapman, Curator of Birds, from field studies made by him on the American Museum expedition of March and April, 1910. The background is by Robert Bruce Horsfall from studies by Henry A. Ferguson and Louis Agassiz Fuertes, the accessories were prepared by William Peters and the birds by Henry C. Raven.

THE Academy of Natural Sciences of Philadelphia celebrated the one hundredth anniversary of its founding on March 21, 1912. The Academy has always held a foremost place in the development of ornithology in America. Among the men who in 1812 conceived the idea of organizing the society there was one, Thomas Say, who figured as an ornithologist, although more prominent in other branches of science; while among the first members elected was Alexander Wilson whose untimely death occurred before he had qualified for membership.

In the years that followed the Academy numbered among its active members Charles Lucien Bonaparte, George Ord, Thomas Nuttall, Thomas B. Wilson, John Cassin, Edward Harris, William Gambel, Adolphus L. Heerman, John K. Townsend, Samuel W. Woodhouse, while among its correspondents were Audubon, Baird, Lawrence, Coues, Xantus, etc.

For many years the Journal and Proceedings which now comprise eighty-four volumes formed the principal vehicle for ornithological publication in America and especially during the active period of Cassin's career became famous among ornithologists the world over.

The great ornithological collection of the Academy which now comprises some 60,000 specimens first gained prominence through the munificence of Dr. Thomas B. Wilson at one time president of the society who purchased the Rivoli, Gould, Boucier and other foreign collections as well as all the North American material that could be secured and by 1857 had established the Academy's collection as the greatest in the world, in the opinion of no less an authority than Dr. P. L. Sclater.

With the exception of the American Philosophical Society which celebrated its centenary a few years ago, and perhaps a few others, the Philadelphia Academy is the oldest scientific society in America and probably the oldest of those devoted purely to the natural sciences. Its completion of one hundred years of activity really marks the completion of the first century of serious investigations in natural history in this country. The record as we review it is one of which we can well be proud and in the development of science in America to the high standard that it has now attained, the Academy of Natural Sciences of Philadelphia has contributed not a little.

THE Cooper Ornithological Club has recently established two permanent committees for the conservation of wild life. The chief objects of the Club in doing this may be stated as follows. (1) To co-operate with other organizations, including the State Fish and Game Commissions and the Federal Bureau of Biological Survey, to the end that the wild life yet remaining in state and nation may be more effectively protected. (2) To work at all times for an enlightened public sentiment along lines of the conservation of wild animals.

Following is the personnel of the committees. For the Northern Division of the Club, W. P. Taylor, Museum Vertebrate Zoölogy, Berkeley, Chairman; H. C. Bryant, University of California; J. S. Hunter, State Fish and Game Commission, San Francisco; H. W. Carriger, San Francisco; and John W. Mailliard, San Francisco. For the Southern Division, Frank S. Daggett, Director Museum of Science, Arts and History, Los Angeles, Chairman; J. Eugene Law, Hollywood; H. J. Lelande, Los Angeles; Howard Robertson, Los Angeles; and G. Willett, Los Angeles.

MESSRS. W. H. Osgood and Malcolm P. Anderson sailed from New Orleans January 27, 1912, for Colon *en route* for northern Peru where they will cross the Andes into extreme western Brazil. Their object is to collect birds and mammals for the Field Museum of Natural History, but their exact itinerary and time of return will depend upon the conditions that they encounter.

THE Delaware Valley Ornithological Club held its regular annual meeting at the Academy of Natural Sciences of Philadelphia on January 4, 1912.

The officers elected for the current year are President, Samuel N. Rhoads; Vice-President, Stewardson Brown; Secretary, J. Fletcher Street; Treasurer, Samuel C. Palmer, Editor of *Cassinia*, Robert Thomas Moore.

The Club held fifteen meetings during the year, some of the more important communications being A Trip across Canada, by Wm. E. Roberts; Some Western Birds and their Home Lands, by J. A. G. Rehn; Bird-life about Tampa, Florida, by Robert T. Moore; Birds of Northern Venezuela, by Stewardson Brown; Life in the Heron Rookeries of Central Florida, by O. E. Baynard; Birds of the Tierra Caliente of Ecuador, by S. N. Rhoads; Some Birds of St. Margaret's Bay, N. S., by Dr. Spencer Trotter.

THE Journal of the Maine Ornithological Society announces its discontinuance with the December 1911 number, completing its thirteenth volume. We are glad to learn however that this action does not involve the dissolution of the society. It has done excellent work in the interest of bird study and bird protection and we trust that its activities may continue.

"THE GAME-BIRDS OF SOUTH AFRICA" is the title of an important work which Messrs. Witherby & Co. are about to publish. The book is by

Major Boyd Horsbrugh, and will be illustrated by nearly seventy colored plates reproduced in facsimile from the very remarkable drawings of Sergeant C. G. Davies. The work will be in small quarto, and will be issued in four quarterly parts.

The same firm have in preparation and are shortly publishing for Mr. F. W. Headley an illustrated book on the FLIGHT OF BIRDS, a subject which the author has long studied. The book is designed to interest the aviator as well as the ornithologist.

AN Ornithology of Porto Rico is announced by José J. Monclova y Cagigal, to be written in Spanish, French and English.